VA National Center for Health Promotion and Disease Prevention

MOVE!

Weight Management Program

Clinical Reference Manual

November 2005

NCP *MOVE!* Weight Management Program
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Weight Management Program

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Preface

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Foreword

This version of the *MOVE!* Clinical Reference Manual (version 2 October 2005) was written to support clinical staff at VAMC and Community-based Outpatient Clinics (CBOC). The contents of this manual were assembled from multiple sources; where information was directly quoted from another source, a citation is provided. Otherwise, a complete list of references is provided at the end.

The *MOVE!* Program was developed and started in many facilities prior to the work that started in February 2005 on the joint VA/DOD Clinical Practice Guideline on the Screening and Management of Overweight and Obese. As of this writing, this CPG has not been finalized. Wherever possible, we have tried to align elements of *MOVE!* with the draft CPG recommendations. Efforts will be made to align *MOVE!* Program features with the final CPG recommendations.

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Chapter 1
Introduction

Preventing and treating overweight and obesity has become a major public health focus in the US because of increasing prevalence and associated adverse health, social, and economic effects. This chapter will introduce you to the epidemiology of overweight and obesity and to the *MOVE!* Weight Management Program.

1.1 Etiology of overweight/obesity

Genetic, environmental, and behavioral factors all contribute to an individual's tendency to gain excess weight either in childhood or as an adult. The rapid increase within the last decade of overweight and obesity at the population level suggests that environmental and/or behavioral influences have played a larger role than genetics. Clinical providers are an important part of obesity prevention and treatment at the level of the individual patient, but because of the multiple influences, prevention and treatment at the population level require a public-health approach. This reference manual discusses the basics of clinical weight management, providing you with a fundamental knowledge base to guide your clinical decisions and interactions with individual patients.

In most cases, no single factor is responsible for obesity in an individual. Overweight/obesity is usually the result of a net energy surplus over a long period of time (months or years). This surplus results from a mismatch between energy intake (dietary calories) and energy expenditure (physical activity). Successful weight loss programs have one feature in common; they are designed to create a net energy deficit that results in weight loss.

Environmental influences on overweight and obesity are primarily mediated through influences on food intake and physical activity. Environments with easily accessed, calorie-dense food and aggressive marketing contribute to the problem. Furthermore, current work and leisure life-styles necessitate eating many meals outside of the home, which relinquishes control over food choices and portion sizes. On the physical activity side of the equation, mechanization of everyday tasks and activities limit opportunities to be more active. With the move from a primarily agriculturally based economy to an industrial and service industry, many people are entrenched in sedentary daily routines.

1.2 Risks of overweight/obesity

Obesity has numerous adverse health effects. The following is a summary of adverse health effects taken from the *NIH Guidelines for the Identification and Treatment of Overweight and Obesity in Adults: Evidence Report* (herein referred to as the NIH Guidelines), a systematic review by McTigue et al. in support of the US Preventive Services Task Force, and the *Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. Complete citations for these articles are available in the Reference section of this manual.

1.2.a Mortality

Obesity has a "J" shaped relationship to mortality. Mortality is highest for persons with the lowest and highest BMIs and lowest for persons in the range of BMIs between 18.5-24.9 (for women, the range of lowest mortality extends somewhat into the overweight range.). Small linear increases in mortality begin above a BMI of 25 kg/m^2. Above a BMI of 30 kg/m^2, all-cause mortality and cardiovascular mortality increase by 50-100 percent. As age increases, the relationship between BMI and mortality is not as strong and mortality risk from excess weight lessens. Mortality risks from obesity beyond age 74 are unclear. Several reasons have been proposed to explain this phenomenon. First, older adults are more likely to have conditions that increase mortality but which also lead to weight loss (e.g., cancer, end-stage heart, pulmonary disease). Second, persons most sensitive to adverse effects of obesity are more likely to have died before reaching older age. Finally, BMI generally underestimates adiposity in older adults.

1.2.b Morbidity

Heart and vascular disease

Risks for specific morbidities related to obesity vary with age, gender, and race/ethnicity. Many of the health-related risks of obesity are due to coronary heart disease (CHD) and conditions which are risks for CHD (e.g., hypertension (HTN), dyslipidemia, diabetes, metabolic syndrome, hyperinsulinemia, impaired fibrinolytic activity). Abdominal obesity in particular is a risk factor for Type 2 diabetes.

Overweight and obesity have also been identified as independent risks for congestive heart failure (CHF), which is a frequent complication of severe obesity. This may occur for a variety of reasons: coexisting conditions which lead to CHF (HTN, CHD, obstructive sleep apnea), excess weight leading to increased left ventricular mass, and alterations in cardiac structure and function. Somewhat controversial is some recent literature that suggests an "obesity paradox" with respect to congestive heart failure. In patients with heart failure, higher BMIS are associated with lower mortality.

Overweight and obesity is associated with ischemic stroke, but not with hemorrhagic stroke. Like CHD, stroke risk increases as BMI increases.

Sleep apnea

Upper body obesity in particular is a risk for sleep apnea and is generally related to severity. Large neck girth and snoring together are highly predictive of sleep apnea. The major consequences of sleep apnea include hypoxemia, increased sympathetic tone, pulmonary and systemic hypertension, cardiac arrythmias, and daytime fatigue.

Cancer

Overweight and obesity have been associated with the following cancers: colon cancer, breast cancer (predominantly post-menopausal), endometrial cancer (relative risk is high (~3) but absolute risk is low), and gallbladder cancer.

Osteoarthritis

Knee osteoarthritis has been the most studied with respect to association with obesity. The risk for knee osteoarthritis associated with obesity is higher for women than men. Increases in weight are significantly associated with increased pain in weight-bearing joints.

Gallstones

The risk of gallstones increases with increasing weight and is highest when BMI > 40. The absolute prevalence of gallstone disease is about 2-3 times higher in women compared to men across all BMI ranges.

Women's reproductive health

Overweight and obesity are associated with menstrual irregularity, amenorrhea, and impaired fertility. Abdominal obesity in particular is associated with polycystic ovarian syndrome, which is strongly correlated with hyperinsulinemia and insulin resistance. Pregnancy often results in excessive weight gain and retention, but also presents a risk for pregnancy-related complications. Both maternal and infant mortality are higher for obese mothers.

Other health risks

Overweight and obesity are weakly associated with several other conditions, but more importantly, it can contribute to the severity of almost any medical problem. For example obesity often aggravates asthma and breathing problems, stress incontinence, and high blood pressure. Furthermore, obesity increases surgical risk for some procedures.

1.2.c Non-health risks of overweight and obesity

In addition to health effects, obesity is associated with stigmatization and discrimination. Negative attitudes about the obese have been reported in both children and adults and are pervasive in our society. These negative attitudes sometimes translate into stigmatization and discrimination in multiple settings (e.g., employment opportunities, housing, less social desirability, fewer marriage opportunities). Obese individuals report higher levels of low self-esteem and poor body image and have been found to have lower levels of health-related quality of life compared to normal weight individuals. Some literature suggests that obese individuals report higher levels of depression, emotional disturbance and psychopathology, and eating disorders, particularly within the subgroup who seek weight-loss treatment. It is important to note that psychologic distress associated with obesity varies highly within different cultures. Within the black and Hispanic culture, studies have reported less cultural pressure to be thin and higher levels of satisfaction with body image.

1.3 Burden of disease in the US and in the Veterans Health Administration

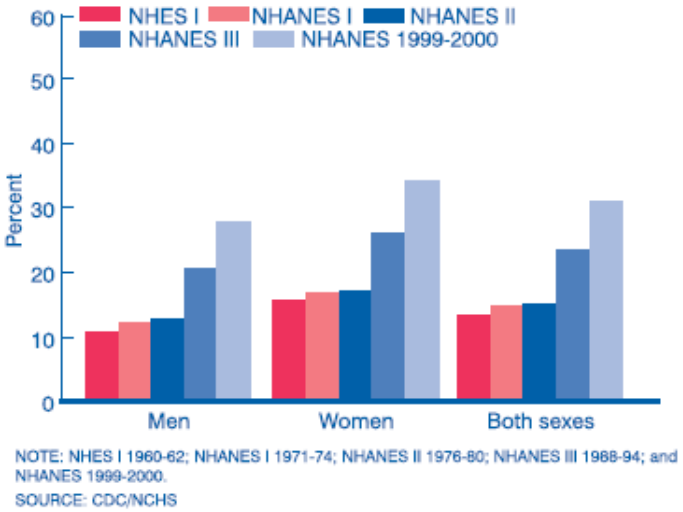
1.3.a Overweight/obesity prevalence in the US

Overweight and obesity have a large burden of disease. An estimated 365,000 deaths in the US were attributable to poor diet and physical inactivity in 2000.(Mokdad et al) This accounts for 15.2% of all deaths and represents the second leading cause of preventable death after

tobacco use. Overweight and obesity account for the major impact of poor diet and physical inactivity on mortality. Because the effects of overweight and obesity may not be realized for some years, increases in overweight/obesity prevalence in the past decade may have an even larger impact on mortality and morbidity in the future.

The prevalence of overweight and obesity in the US has steadily increased since the first national surveys tracking height and weight were performed in the 1960s (See Figure 1). Overweight and obesity prevalence varies by race/ethnicity and by gender. The prevalence is higher among women compared to men and is highest in non-Hispanic black women, Mexican-American women, and Native Americans.

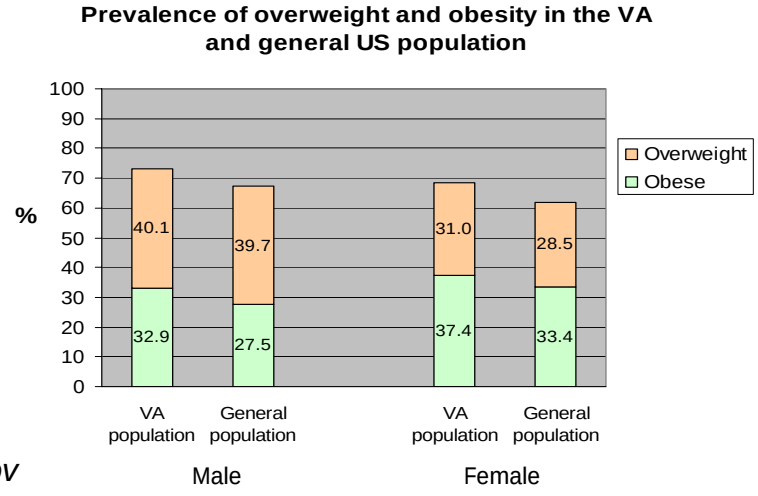
Figure 1. Trends in Obesity (BMI ≥ 30), age 20-74 years: United States



1.3.b Overweight/obesity prevalence in the Veterans Health Administration

Overweight and obesity are as prevalent in the veteran population as in the general population (See Figure 2). In the year 2000, approximately 72.7% of veterans using outpatient VHA facilities were overweight or obese.(Das et al.) Overweight/obesity may soon rival tobacco use as the leading preventable cause of veteran health problems.

Figure 2. Overweight and obesity prevalence in the general population and in the VHA. Year 2000 data.



1.3.c Economic impact of overweight and obesity

Overweight and obesity have a substantial economic impact for the US healthcare system. Costs associated with obesity can be categorized as direct (diagnostic and treatment related expenses for obesity and obesity-related conditions) or indirect (lost wages by people unable to work due to obesity-related illness or disability and life-years lost by premature obesity-related death). The most recent figures available are for the year 2000 and estimate direct costs to be approximately $61 billion and indirect costs to be about $56 billion for a total of $117 billion. In 1995, the fraction of US health costs attributed to obesity was roughly 5.7%. Most of the cost associated with obesity is due to Type 2 diabetes, coronary heart disease, and hypertension. Currently, no estimates of the cost of obesity specifically within the VHA are available. Because the prevalence of obesity is roughly similar to that of the general population, the fraction of health costs attributed to obesity in the VHA is likely to be similar. In other words, the costs are likely to be substantial for the VHA.

1.4 Efficacy of weight management programs

Weight management programs are highly variable; they can be categorized as commercial, clinical, community-based, or self-designed. Whatever the setting, weight management programs can be roughly divided into 3 types:

- Behaviorally-based
- Medical
- Surgical

1.4.a Efficacy of behaviorally-based programs

Several high-quality systematic reviews have summarized the evidence on behaviorally-based weight management programs. The reader is referred to these documents for an in-depth discussion of efficacy. (NIH Evidence Report, McTigue et al, NHS Review, Jain) In summary, behaviorally-based programs produced modest weight loss (3-5 kg) that was sustained over 1-2 years. Greater weight loss is seen with higher-intensity interventions. The US Preventive Services Task Force defines intensity by frequency of person-to-person contact. Moderate-intensity is defined as at least monthly contact; high-intensity is defined as more than monthly contact. The most effective interventions were high-intensity and combined nutrition education and diet and exercise counseling with behavioral strategies for health behavior change. No differences were found between individual versus group treatment. No one behavioral approach was superior. Examples of behavioral approaches that were effective include assessment of readiness to change and motivational counseling techniques, self-monitoring, goal-setting, and use of reinforcement. The additional use of monetary incentives and spousal participation had little effect on weight loss outcomes.

1.4.b Efficacy of medical and surgical weight loss programs

When used in addition to behaviorally-based weight loss programs, medical or surgical adjuncts do result in greater amounts of weight loss (amount varies by intervention). However, medical and surgical treatment options generally involve greater patient risk and cost.

Medically based programs can be classified as those involving prescription medications or those involving such drastic modifications in diet that medical supervision is required. Very-low calorie diets (VLCD) or fasts are examples. VLCDs are not recommended by the NIH Guidelines because of nutrient deficiencies that occur, higher rates of weight regain, and higher rates of gallstone development. Furthermore, the evidence indicates that low-calorie diets are just as effective as VLCDs for producing weight loss at 1 year.

Pharmacotherapy with weight loss medication has been most often studied in conjunction with lifestyle modification (diet and/or exercise advice plus/minus the use of behavioral strategies). Weight loss from medications averages between 2-10 kg. Most weight loss occurs in the first 6 months. Only 2 drugs (orlistat and sibutramine) have been studied beyond 2 years. Adverse effects due to weight loss drugs are common and in some cases are serious. Because weight loss medications have the potential for serious risks, their use is recommended only for patients at higher risk due to obesity. A detailed discussion of the use of orlistat and sibutramine can be found in Chapter 7.

Surgical interventions result in the greatest amount of weight loss, typically an order of magnitude above any other available intervention. Bariatric surgery has been shown to produce clinically significant, sustained weight loss among the extremely obese (BMI $\geq$ 40) resulting in decreased mortality and morbidity (specifically diabetes, sleep apnea, and dyslipidemias). Bariatric surgery has also been shown to increase health-related quality of life. Data that exist on bariatric surgery for less obese patients (BMI 35-39.9) support similar effectiveness, but experts consider this body of evidence inconclusive given the lack of appropriately designed studies for this target population. Because bariatric surgery carries the highest risk of adverse effects and complications compared to any other weight loss intervention, its use is generally restricted to the extremely obese for which behaviorally-based programs are not likely to result in enough weight loss to be considered clinically significant. A detailed discussion of bariatric surgery can be found in Chapter 9.

1.5 Risk reduction and goals of weight loss

Goals for weight management may vary by individual. All of the following are reasonable goals:

- Weight loss
- Weight loss maintenance for the long-term
- Prevent further weight gain

Improvements in obesity-associated conditions such as diabetes, hypertension, and dyslipidemias occur with a weight-loss of approximately 10% from baseline. Initial attempts to reduce weight to “Ideal Body Weight” levels is not required to achieve some health benefits, but more health benefits are realized with greater weight losses. The evidence supports that maintenance of a “moderate” weight loss is better than weight regain from a “marked” weight loss. Furthermore, achieving even a modest weight loss can set the stage for further successful weight loss. Therefore, initial weight loss goals should generally be set at no more than 10% of baseline weight (See Table 1).

Table 1. Target initial weight loss goal based on a 10% weight loss from baseline.

Baseline Weight	10% Weight Loss Goal	Target Weight (for 10% loss)
150	15	135
160	16	144
170	17	153
180	18	162
190	19	171
200	20	180
210	21	189
220	22	198
230	23	207
240	24	216
250	25	225
260	26	234
270	27	243
280	28	252
290	29	261
300	30	270
310	31	279
320	32	288
330	33	297
340	34	306
350	35	315

1.6 *MOVE!* development

VA providers asked for help with viable, efficacious weight management interventions. In response, the VA National Center for Health Promotion and Disease Prevention (NCP) developed the Managing Overweight/Obesity for Veterans Everywhere (*MOVE!)* Program.

The *MOVE!* Weight Management Program is based on the *NIH Identification and Treatment of Overweight and Obesity in Adults-Evidence Report* (1998) and *Practical Guide* (2000). Although based on these guidelines, *MOVE!* was specifically tailored to the VA health care setting. *MOVE!* has been continually updated as new science emerges and continues to be refined based on feedback from the field. The clinical team at NCP who developed *MOVE!* represents a multidisciplinary team of providers with experience in primary care and weight management and includes: physicians, dietitians, psychologists, physical activity specialists, and nurses.

The development of *MOVE!* has been guided by a Weight Management Executive Council. This Council is a multidisciplinary group comprised of nationally recognized experts in the fields of weight management and physical activity. A list of members is available on the *MOVE!* website. The initial *MOVE!* Program was tested for feasibility at 17 VA sites (VAMC and CBOC) in late 2003 - early 2005. Based on feedback, *MOVE!* was revised and refined and as of this writing (October 2005) is undergoing early implementation at approximately 50 VA facilities. VISN and Facility *MOVE!* Coordinators were named in late summer/early fall 2005 to facilitate national implementation beginning January 2006. For more information about implementing *MOVE!* at the local facility level, please consult the ***MOVE!* Quick Start Manual**.

1.7 Overview of the *MOVE!* Algorithm and levels of care

1.7.a General Characteristics of the *MOVE!* Program

- Emphasis on health and well-being, not appearance
- Lifetime/lifestyle focus with achievable goals
- Population approach
- Evidence-based, tiered treatment
- Comprehensive/multidisciplinary content: behavior, nutrition, and physical activity
- Individually tailored, patient-determined intensity of treatment with periodic treatment plan revision

1.7.b Integration into routine care within the VA

- Same-day Primary Care screening for overweight/obesity and enrollment into *MOVE!*
- Enrollment, initial, and on-going care through Primary Care with support of ancillary providers (dietitians, psychologists, physical activity specialists, medical specialists)
- Integration with existing resources when feasible
- Standard *MOVE!* Program tools and materials developed for use (available on the intranet VA *MOVE!* website- vaww.move.med.va.gov)

1.7.c *MOVE!* patient flow, algorithm, and levels of care

Figure 3 is the *MOVE!* Algorithm which represents a patient's flow through the *MOVE!* Program. Patient flow can be categorized into the following phases:

1. Screening for overweight and obesity
2. Assessment of readiness and interest to participate in weight management
3. Multi-factorial assessment of history and weight-management behaviors
4. Treatment (several strategies and intensities available)
5. Maintenance

Chapter 2 of this manual discusses Screening for Overweight and Obesity. Assessing readiness and performing a multifactorial assessment are covered in sections of Chapter 3 and 4.

The *MOVE!* Program has 5 levels of treatment. These various levels offer patients a variety of options in order of increasing intensity.

Level 1 - *Self-management Support*
Level 2 - *Group Sessions and/or Individual Specialty Consultation*
Level 3 - *Weight Loss Medications*
Level 4 - *Brief Residential Treatment*
Level 5 - *Bariatric Surgery*

Levels 1 and 2 are the foundation of the *MOVE!* Program while Levels 3, 4, and 5 are considered adjunctive options for those requiring more intense treatments. Levels 1 and 2 are designed to be integrated into the primary care of veterans with ancillary support where needed. The following chapters provide detailed clinical guidance for staff who are supporting patients receiving care within Levels 1 and 2:

Chapter 4: Facilitating Health Behavior Change
Chapter 5: Facilitating Healthy Nutrition
Chapter 6: Facilitating Physical Activity
Chapter 10: Weight Loss Maintenance

The following section briefly describes each of the 5 *MOVE!* Levels. Specific implementation guidance for Levels 1 and 2 is provided in the ***MOVE!* Quick Start Manual**.

1.7.d Level 1 - Self-management Support

Level 1 is the foundation for all levels of *MOVE!*. The central features of self-management support include:

- Use of a patient assessment to guide goal-setting and action planning
- Emphasis on the patient's central role in treatment
- Planned follow-up
- Connecting patients to internal and external resources to support their management

Features of self-management support that will be discussed in subsequent chapters include use of the *MOVE!23* Patient Questionnaire (multi-factorial patient assessment) and its resulting patient and staff reports; patient handouts in the areas of behavior, physical activity, and nutrition (see Appendix 2); systematic staff follow-up; and connections with other VA and community resources.

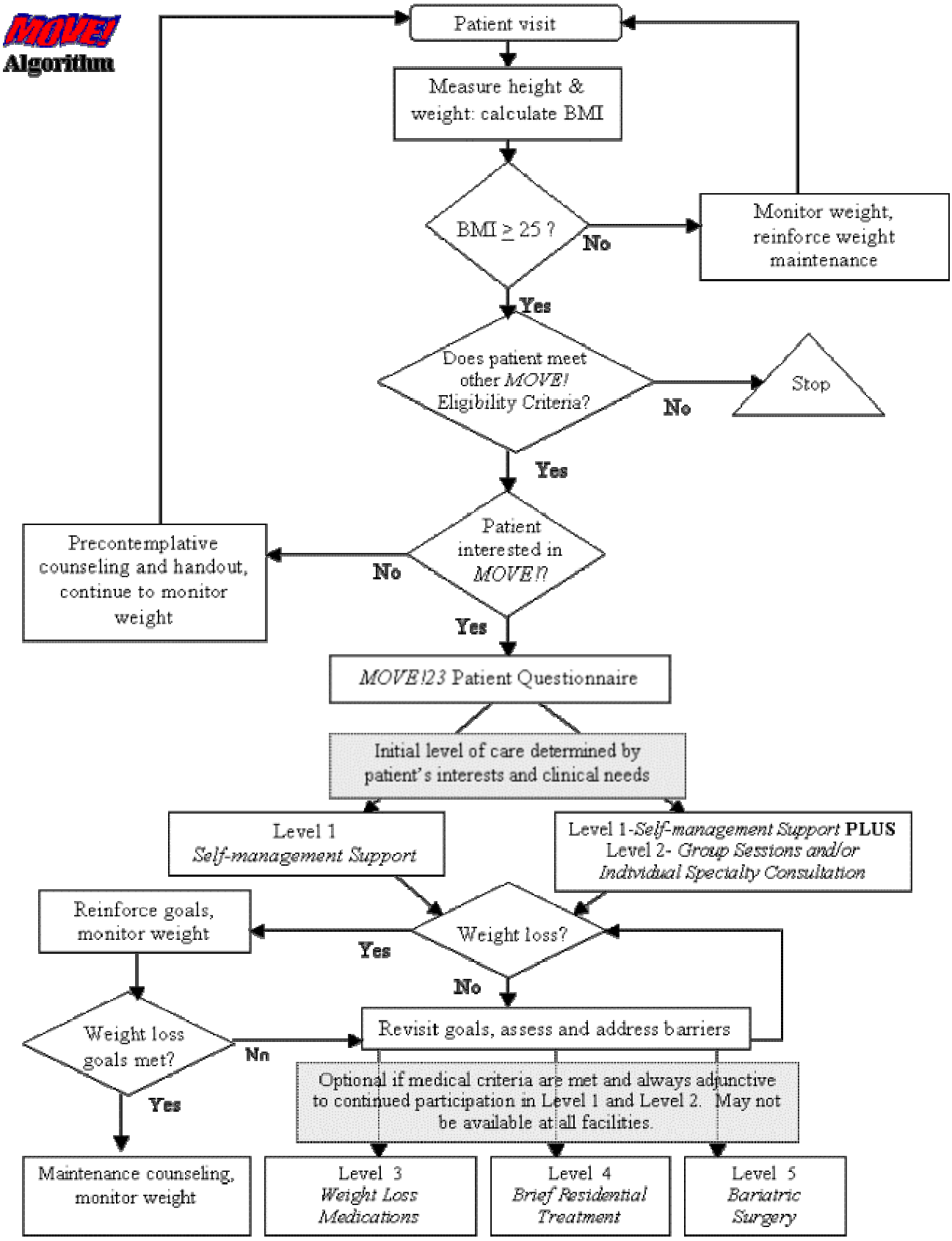
1.7.e Level 2 - Group Sessions and/or Individual Specialty Consultation

Level 2 treatment involves *Group Sessions and/or Individual Specialty Consultation*. Provide Level 2 services at any time you (or the veteran) feel it would be beneficial.

For weight management, the scientific literature suggests that more intensive interventions result in greater patient benefit. Therefore, participation in group sessions is one way to efficiently increase the intensity of treatment. Group sessions are recommended for all veterans who enroll in *MOVE!* to complement and reinforce Level 1 - *Self-management Support*. However, it's important to remember that group sessions may not be a feasible option for some veterans due to transportation, scheduling, or other issues. Sample group modules have been developed by NCP and are available on the *MOVE!* intranet website. A list of available group modules is in Appendix 3.

Some veterans may need additional individual guidance, support, or treatment beyond that afforded through Level 1 - *Self-management Support* and Level 2 - *Group Sessions*. In these cases, a referral to an individual specialty provider is encouraged and constitutes a *MOVE!* Level 2 service. Examples of such specialty providers include: dietitians, behavioral health professionals (psychologists, psychiatrists, advanced-practice nurses, etc.), physical activity specialists (PT, OT, KT, RT, etc.), and medical specialists (cardiologists, physiatrists, endocrinologists, etc.).

Figure 3. The *MOVE!* Weight Management Program Algorithm



1.7.f Level 3 - Weight Loss Medications

Level 3 of *MOVE!* was developed collaboratively with the VA National Pharmacy Benefits Management Strategic Healthcare Group. Medications for weight loss and maintenance:

- Require a non-formulary drug request
- Have criteria for use which include concurrent participation in *MOVE!* Levels 1 and/or 2.

See Chapter 7 for a more detailed discussion on the use of weight loss medications.

1.7.g Level 4 - Brief Residential Treatment

Currently, these services are limited to a few VHA facilities and may not be available for all qualified patients. Planning for increasing access to Level 4 services is on-going. See Chapter 8 for further discussion of Brief Residential Treatment.

Level 5 - Bariatric Surgery

Level 5 of *MOVE!* is being developed collaboratively with the VA Bariatric Surgery Workgroup and the VA National Program Director for Surgery. Currently, these services are limited to a few VHA facilities and may not be available for all qualified patients. See Chapter 9 for further discussion of bariatric surgery.

1.8 Sensitivity when working with obese patients

Weight is a sensitive topic for many people, including patients, veterans, and staff. Inadequate furniture/equipment and insensitive remarks by staff contribute to an unwelcoming environment for veterans to discuss their weight issues. Please be sensitive when discussing issues of weight with patients. One study asked obese individuals which terms they would prefer their doctors use when discussing obesity. The most preferred term was “Weight” followed by “Excess Weight” and “BMI”. The terms “Weight Problem” and “Unhealthy Body Weight” were perceived as neutral. The terms "Fatness", "Obesity", "Excess Fat", "Large Size", "Heaviness", and "Unhealthy BMI" were rated least desirable.

Clinics can become “weight-friendly" by ensuring that:

- A structure and process are in place to ensure that patients are weighed in private. Staff should avoid commentary about the measured weight and avoid insensitive nonverbal responses.

- Some office medical equipment such as exam tables, blood pressure cuffs, patient gowns, and scales can accommodate the heaviest of individuals (up to 800 lbs). No patient should have to be taken to the facility freight loading dock to be weighed. Examples of large-capacity scales include: Scaletronix 5002, Scaletronix 5005 (stand on) and Scaletronix 6006 (wheelchair).

- Some furniture in the waiting and exam rooms can accommodate larger sizes and are appropriately arranged to minimize difficulty with access by larger individuals. This is a safety issue as much as it is a sensitivity issue; standard chairs and tables may break with repeated use by heavy individuals leading to patient injury. Overweight and obese patients often have trouble getting into chairs with armrests and getting out of soft furniture that is low to the ground (e.g., love seats). Consider sturdy benches with backs and armless chairs that are high off the ground.

- Office personnel treat overweight and obese subjects with dignity and respect. This includes avoiding derogatory terms to describe obesity and understanding that obesity is a multifactorial chronic disease and not necessarily a result of laziness, poor will power, or other character traits.

Weight is a topic that is not often addressed with patients by health care professionals. This occurs for a variety of reasons. There is often a lack of time within the office visit. Many health care professionals lack confidence in their behavioral health counseling skills and think they can't impact patients. The tools and infrastructure to support treatment of patients who are identified as overweight or obese are not readily available. Lastly, staff are often uncomfortable discussing weight with patients as it can be a very sensitive topic particularly if the health care professional is overweight or obese.

MOVE! can help overcome some of these barriers by providing a structured framework and tools to bring up and address the problem of overweight and obesity with patients. As to the last barrier, some overweight/obese VA employees may feel that discussing weight management with patients is hypocritical and that is very understandable. In many instances, it can be useful for the overweight employee to openly acknowledge his or her own struggle with weight and to empathize with the patient about making difficult changes. *MOVEmployee!*, a version of the *MOVE!* program designed to assist VA employees with weight management, is under development and when available can help overweight and obese employees meet their own personal weight management goals. The VA recognizes the importance of employees' health both from a healthy workforce standpoint and as role models of success for VA patients.

Chapter 2
Screening for Overweight and Obesity

A population-based clinical approach to disease is one in which patients with a target condition are systematically identified and offered treatment. In order to justify screening, a target condition should meet the following criteria*:

1. The disease (or other health problem) must cause a substantial burden of suffering, must be relatively common, and its natural history must include a pre-symptomatic phase during which the disease can be detected by a screening test.

2. Treatment for the disease must work better if initiated in the presymptomatic phase as opposed to the period after symptoms develop.

3. An acceptable test accurately detects the disease in the presymptomatic phase.

4. Application of the test itself, or the work-up of those with a positive test, must not cause more harm than the benefit from treating the disease early.

**Criteria from the UNC Program on Prevention in Education and Practice*

Screening for overweight and obesity clearly meets these criteria. Overweight and obesity are common and have a high burden of suffering. Overweight and obesity can be identified at a stage which is early and which poses smaller risks than at a later stage which poses higher risks. Weight reduction to non-obese levels is more achievable at lower stages of obesity than at higher stages. Accurate, safe, and feasible screening tests are available to identify overweight and obesity at early stages.

2.1 Methods to screen for overweight and obesity

Based on a careful review of the available evidence, Body Mass Index (BMI) is the screening test recommended by the US Preventive Services Task Force for the identification of overweight/obesity. The NIH Guidelines also recommend the use of BMI. Substitution of another tool or the requirement for additional measurement(s) may not enhance care and will likely increase staff burden.

2.1.a Available methods that are not recommended for screening

Obesity is defined as an excess of body fat (adiposity). For women, the normal body fat range is 21-35% of mass; in men, this range is 8-24%. When body fat exceeds these ranges, a patient is said to have excess adiposity. The most technically accurate measures for body fat include total body water displacement, bioelectrical impedance, MRI, neutron activation analysis, and dual-energy X-ray absorptiometry (including CT), all of which are impractical for routine use in primary care. Some portable electronic devices for measuring body fat are starting to be available but may not be as accurate or as reliable as some of the gold standards. Body fat measurement via calipers is generally inaccurate if not calculated as an average of measurements from at least 3 sites (thigh, hip, upper arm, sub-scapular). This requires disrobement of the patient and needs to be done by properly trained, well-practiced staff. Most

all of the measures discussed are either not practical or not accurate and reliable for measuring body fat percentage reduction.

2.1.b Body mass index (BMI)

BMI is a practical, reliable measure highly correlated with body fat percentage (R^2 = 0.95 in men, 0.98 in women). Furthermore, it can be used in addition to weight to monitor progress within a treatment program. BMI simply adjusts weight for height using the following formula:

$$\text{BMI} = \frac{\text{weight (in kilograms)}}{\text{height (in meters)}^2}$$

Example: weight 220 lbs = 100 kg
height 5 feet 7 inches = 1.70 meters

$$\text{BMI} = \frac{100 \text{ kg}}{(1.70 \text{ meters})^2} = \mathbf{34.5 \text{ kg/m}^2}$$

To ensure BMI accuracy, actual height (without shoes) and weight should be measured using appropriately calibrated scales. BMI can be calculated using the formula above or alternatively by using a BMI chart such as the one provided in Figure 4. BMI is automatically calculated and displayed in the Vitals Health Summary portion of CPRS and with the next update of CPRS will be available as an option to be displayed in the Vitals Section of the CPRS cover page.

Patients are classified with respect to BMI according to the following categories:

BMI	Classification
< 18.5	Underweight
18.5-24.9	Normal Weight
25-29.9	Overweight
≥ 30	Obese

BMI thresholds are age-dependent and the above classifications apply to ages ≥ 18. Patients with BMI ≥ 30 can be further classified as follows:

BMI	Classification
30-34.9	Mildly obese (also called class I obesity)
35-39.9	Moderately obese (also called class II obesity)
≥ 40	Extremely obese (also called class III obesity)

Veterans with a BMI ≥ 25 are considered to screen “positive” for overweight or obesity.

In most cases, BMI accurately estimates total body fat, but one should remember that it is only a screening test and has limitations. Since BMI cannot distinguish lean versus fat tissue, some individuals may have elevated BMI when in fact they do not have excess total body fat. Examples include professional athletes, body-builders, very large-framed individuals, or very short individuals. In these cases, BMI classification would label these individuals as “overweight” or “obese” when in fact their total body fat percentages are in the normal range. They are considered “false positives”.

Figure 4. BMI Chart

MOVE! Body Mass Index

WEIGHT (LBS)

HEIGHT (ft/in)	120	130	140	150	160	170	180	190	200	210	220	230	240	250	260	270	280	290	300	310	320	330
4'5"	30	33	35	38	40	43	45	48	50	53	55	58	60	63	65	68	70	73	75	78	80	83
4'6"	29	31	34	36	39	41	43	46	48	51	53	56	58	60	63	65	68	70	72	75	77	80
4'7"	28	30	33	35	37	40	42	44	47	49	51	54	56	58	61	63	65	68	70	72	75	77
4'8"	27	29	31	34	36	38	40	43	45	47	49	52	54	56	58	61	63	65	67	70	72	74
4'9"	26	28	30	33	35	37	39	41	43	46	48	50	52	54	56	59	61	63	65	67	69	72
4'10"	25	27	29	31	34	36	38	40	42	44	46	48	50	52	54	57	59	61	63	65	67	69
4'11"	24	26	28	30	32	34	36	38	40	43	45	47	49	51	53	55	57	59	61	63	65	67
5'0"	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65
5'1"	23	25	27	28	30	32	34	36	38	40	42	44	45	47	49	51	53	55	57	59	61	62
5'2"	22	24	26	27	29	31	33	35	37	38	40	42	44	46	48	49	51	53	55	57	59	60
5'3"	21	23	25	27	28	30	32	34	36	37	39	41	43	44	46	48	50	51	53	55	57	59
5'4"	21	22	24	26	28	29	31	33	34	36	38	40	41	43	45	46	48	50	52	53	55	57
5'5"	20	22	23	25	27	28	30	32	33	35	37	38	40	42	43	45	47	48	50	52	53	55
5'6"	19	21	23	24	26	27	29	31	32	34	36	37	39	40	42	44	45	47	49	50	52	53
5'7"	19	20	22	24	25	27	28	30	31	33	35	36	38	39	41	42	44	46	47	49	50	52
5'8"	18	20	21	23	24	26	27	29	30	32	34	35	37	38	40	41	43	44	46	47	49	50
5'9"	18	19	21	22	24	25	27	28	30	31	33	34	36	37	38	40	41	43	44	46	47	49
5'10"	17	19	20	22	23	24	26	27	29	30	32	33	35	36	37	39	40	42	43	45	46	47
5'11"	17	18	20	21	22	24	25	27	28	29	31	32	34	35	36	38	39	41	42	43	45	46
6'0"	16	18	19	20	22	23	24	26	27	29	30	31	33	34	35	37	38	39	41	42	43	45
6'1"	16	17	19	20	21	22	24	25	26	28	29	30	32	33	34	36	37	38	40	41	42	44
6'2"	15	17	18	19	21	22	23	24	26	27	28	30	31	32	33	35	36	37	39	40	41	42
6'3"	15	16	18	19	20	21	23	24	25	26	28	29	30	31	33	34	35	36	38	39	40	41
6'4"	15	16	17	18	20	21	22	23	24	26	27	28	29	30	32	33	34	35	37	38	39	40
6'5"	14	15	17	18	19	20	21	23	24	25	26	27	29	30	31	32	33	34	36	37	38	39
6'6"	14	15	16	17	19	20	21	22	23	24	25	27	28	29	30	31	32	34	35	36	37	38
6'7"	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	30	32	33	34	35	36	37
6'8"	13	14	15	17	18	19	20	21	22	23	24	25	26	28	29	30	31	32	33	34	35	36
6'9"	13	14	15	16	17	18	19	20	21	23	24	25	26	27	28	29	30	31	32	33	34	35
6'10"	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	34	35

Underweight: BMI = less than 18.5

Normal weight: BMI = 18.5 to 24.9

Overweight: BMI = 25 to 29.9

Obesity: BMI = 30 to 39.9

Extreme Obesity: BMI = 40 and above

M06 - Version 2.0

Source: National Obesity Educational Initiative

With age, the ratio of fat mass to lean mass increases. Thus, older adults carry more fat for a given BMI than a younger person. Therefore, BMI classification may label some older adults as "normal weight" when in fact they have excess adiposity. These would be considered "false negatives". Figure 5 illustrates the concept of "false negatives" and "false positives" when using BMI for screening.

Figure 5. "2 X 2" table illustrating the distribution of patients classified using BMI against a gold standard measure of body fat percentage.

	Body Fat % High	**Body Fat % Normal**
BMI elevated	True Positive	False Positive
BMI normal	False Negative	True Negative

BMI is not accurate for screening veterans with amputations. Corrections to the BMI formula are possible (available in the next version of this manual). Alternative methods for assessing body fat are recommended for this population. For patients who are unable to stand due to spinal cord injury (or other reason), a height can be measured while lying down. Alternatively, arm span can be used to approximate height. This method works best for patients of European descent. It underestimates height in Asians and overestimates height in African-Americans. When a question about the accuracy of an individual's BMI classification arises, consider referral to a specialty provider qualified to perform further diagnostic testing for adiposity (dietitian, endocrinologist, etc.).

2.1.c Abdominal girth (waist circumference)

BMI does not take into account body fat distribution. Whereas BMI approximates the amount of total body fat, abdominal girth approximates the amount of centrally deposited fat. Additional risk stratification can be determined during the physical exam by assessing the degree of abdominal or centrally deposited fat. This type of fat distribution carries a higher metabolic and cardiovascular risk than peripherally deposited fat. Waist circumference is a measurement that can assess abdominal girth and provides an independent prediction of risk over and above that given by BMI alone. Waist circumference is the length around the abdomen measured at the iliac crest. Waist circumference is most useful in patients who are normal weight or overweight. It adds very little to risk for patients with BMI $\geq$ 35. Epidemiologic studies suggest that the predictive power of waist circumference varies by race (particularly in men). Waist circumference is less predictive in African-American populations. Section 3.2.c of this manual discusses the measurement of waist circumference in further detail.

In patients with BMI 25-35, waist circumference can be used to:

1. Identify patients at higher risk who may benefit from more intensive weight management efforts and/or clinical management of comorbid conditions; or

2. Monitor progress in a weight management program. Decreases in waist circumference even in the absence of changes in weight or BMI indicate progress.

Compared to other available techniques for identifying at-risk patients, measuring abdominal girth using waist circumference is a practical measure for primary care. However, at the BMI threshold recommended for enrollment in *MOVE!* (BMI $\geq$ 25), most at risk individuals will be identified using BMI alone as a screening tool. Abdominal girth is more difficult to measure than height and weight and requires patients to disrobe. Therefore, the NCP team that developed *MOVE!* suggests that waist circumference be used for further risk stratification and progress monitoring after program entry rather than as part of the initial screening process. Facilities using higher BMI thresholds for program entry (e.g., BMI $\geq$ 30) may want to consider also using waist circumference as part of the screening process to avoid overlooking patients with BMI < 30 who are nevertheless at risk for cardiovascular disease due to excessive abdominal adiposity.

2.1.d Screening interval

Few studies have assessed the impact of various intervals for screening for obesity. The NIH Guidelines suggest 2 years as an appropriate screening interval. They state that while this interval is not evidence-based, it represents a reasonable balance between early weight gain recognition and the burden of repeated measurements. The US Preventive Services Task Force recommendations do not address screening intervals.

2.2 Determination of benefit

Figure 6 presents the *MOVE!* Eligibility Screening Chart. This tool can help staff decide whether or not to offer *MOVE!* to patients.

2.2.a Minimum BMI criteria

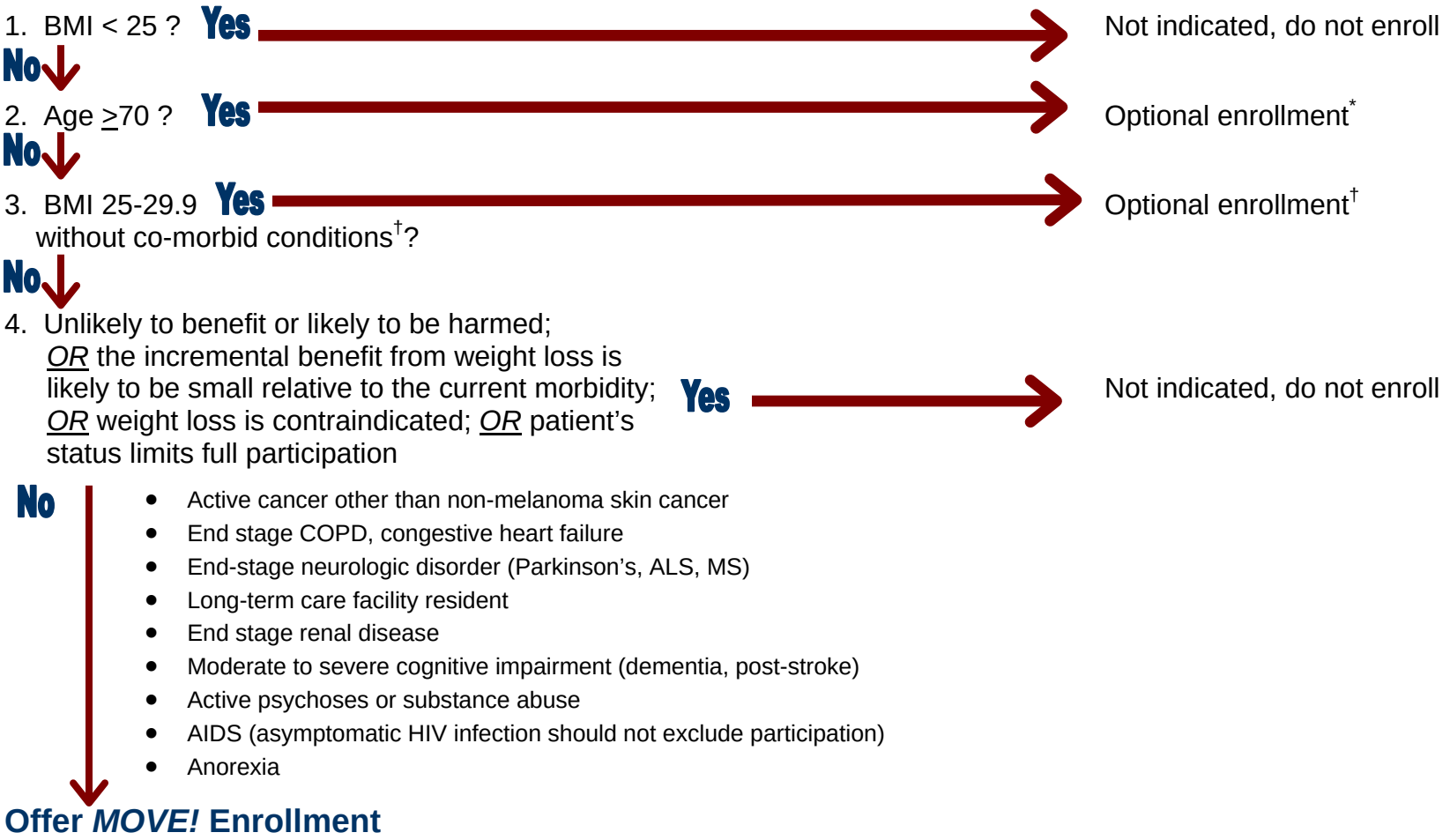
MOVE! is for overweight and obese veterans and enrollment/participation should not be routinely offered to veterans with a BMI < 25. Exceptions can be made; for example veterans with a prior history of overweight/obesity who've successfully lost weight and want assistance with maintenance or veterans with significant recent weight gain even if BMI is < 25.

2.2.b Small, absent, or negative net benefit

Not everyone with a BMI > 25 will benefit from weight loss, and some may even be harmed. *MOVE!* should not be offered to veterans when the benefit from weight loss is likely to be small, absent, or negative relative to other current conditions. Examples include veterans with end-stage cancer, severe congestive heart failure or emphysema, moderate or severe cognitive impairment, active substance use, or veterans who are long-term care residents. A full list of conditions to consider is provided in Figure 6. Many of these conditions present competing demands for the veteran and the healthcare staff that care for them. Others prevent full active participation by the veteran which is a requirement for successful weight management. Some of these conditions are associated with poor life expectancies and the veteran is unlikely to realize any health benefit from a moderate weight loss. Finally, weight loss or health behaviors associated with weight loss may actually be harmful to a patient's condition.

Figure 6. *MOVE!* Eligibility Screening Chart

The *MOVE!* Program is designed to reach the most high-risk patients and those most likely to benefit. The chart provides population and evidence based guidance in addition to addressing workload concerns. As the *MOVE!* program evolves in your medical center, enrollment criteria can become less stringent.



*BMI not as strongly correlated with mortality in elderly population, so weight/BMI reductions probably have decreased benefit compared to younger population. Enrolling patients over age 70 usually requires medical clearance prior beginning new physical activity and closer nutritional supervision to minimize protein, vitamin, and mineral deficiencies.

† Co-morbid conditions include conditions such as diabetes, high blood pressure, high cholesterol, arthritis, heart disease, low back pain, sleep apnea, or other obesity associated conditions. Enrollment in *MOVE*! is strongly recommended for veterans with BMI 25-29 AND co-morbid conditions.

2.2.c Who will benefit most

Further stratification can occur once staff have determined that there is at least some benefit to weight loss for a patient. The evidence supports that certain patients will benefit from weight loss more than others. Those that benefit most include younger patients, patients with higher BMIs (> 30), and patients with obesity-associated conditions or two or more cardiac risk factors.

Overweight/obesity does not impact health in older adults (> age 70) as much as in younger adults, but age alone should not preclude full *MOVE!* participation for interested patients. Adults ≥ 70 will generally require medical clearance prior to beginning new programs of physical activity. Furthermore, older adults are at higher risk of nutritional deficiencies, so dietary changes should be closely supervised.

Overweight is clearly a precursor to obesity, but the evidence is insufficient with regards to the benefits of counseling-based interventions in overweight patients (BMI 25-29.9) without obesity-related conditions.

Because resources may be limited and not everyone will benefit equally from weight management, focusing resources on the patients at highest risk who are most likely to benefit is one strategy to allocate limited resources. Some facilities may choose to limit enrollment to patients with BMI ≥ 30 or to patients with obesity-associated conditions.

2.2.d Advise those who would benefit about health risks

In general, if a patient will not benefit from weight loss, it is usually not advisable to advise about health risks and offer treatment. For those patients who will benefit from weight loss, advise them about the health risks of overweight and obesity. A sample dialog follows:

> *"Mr. Jones, your Body Mass Index is 33; this is considered unhealthy. Your weight is probably contributing to your diabetes and it may cause other harmful health effects in the future such as sleep apnea or high blood pressure. I'm concerned about your health."*

2.2.e Offer enrollment to those who would benefit and who are interested

The final step in the screening process is to offer enrollment in *MOVE!* to those would benefit and who are interested. After advising patients of the health risks, assess interest in trying to lose some weight. Try to tailor your message of health risk advice and offer of enrollment as much as possible to each individual veteran. Below is a sample dialog:

Staff: "As I mentioned, I'm concerned about your weight and its effects on your health now and in the future. Are you interested in trying to lose some weight?"

Patient: "Well, I have been thinking about it."

Staff: That's great! Just to let you know we do have a program here in our clinic called the MOVE! Weight Management Program. It focuses on small changes in your diet and physical activity levels to help you lose modest amounts of weight. It's nothing drastic, just sensible, healthy things. We can work with you along the way to help you set goals and will follow-up frequently to see how you are doing. We also offer group sessions if that is something you are interested in. Does this sound like a program you might be interested in?"

Chapter 4 provides more information about facilitating health behavior change with patients who may or may not be interested in weight management. Chapters 5 and 6 review the basic principles of nutrition and physical activity to support patients who are interested.

Chapter 3
Patient Assessment and Medical Evaluation

This chapter introduces staff to the process of assessing patients who have indicated they are interested in losing and controlling their weight. This first part of this chapter discusses the use of the *MOVE!23*, a multifactorial patient assessment tool. The second part of this chapter discusses the medical evaluation of patients beginning a weight management program. Finally, the third section addresses the evaluation of a patient's medication regimen and offers suggestions for minimizing the effects of drug-induced weight gain.

3.1 Multifactorial patient assessment

Weight management strategies will vary from patient to patient. There is no one effective strategy that will work for every patient. Thus, individualizing care to a patient's strengths and barriers is an important component of any effective weight management program. A multifactorial patient assessment involves gathering information about history, behavior, nutrition, and physical activity habits that are important for weight management. A structured clinical interview is one way to gather this information but is often not feasible within a primary care setting where time and resource constraints abound. The *MOVE!23* Patient Questionnaire is a quick multifactorial patient assessment that can be used when patients indicate that they are interested in participating in weight management activities.

3.1.a History of the *MOVE!23*

When the *MOVE!* Program was first developed, it was recognized that providers needed a way to rapidly assess patients with respect to the multiple factors important for weight management. The items included on the original patient assessment used in the *MOVE!* pilot studies were either adapted from other instruments or derived empirically based on experience working with weight management patients. Feedback from staff and patients at the pilot sites and review of the data generated from pilot *MOVE!* enrollees allowed NCP to shorten and refine this questionnaire to the current version consisting of 23 items; hence the name *MOVE!23*.

The purpose of this questionnaire is to be a clinical tool; it's not for research purposes. Measurement of various weight control behaviors with this tool is not perfect, nor will all veterans necessarily understand each item that is being asked. It is suggested that reports resulting from the patient's answers on the *MOVE!23* be used to help stimulate discussion between provider and patient to more effectively manage the patient's weight. It is this discussion that results from the multifactorial assessment that is the critical piece of the encounter.

3.1.b Format of the *MOVE!23*

The *MOVE!23* is a computerized assessment that takes about 10 minutes to complete and asks veterans for information in the following areas:

- Demographics (including age, sex, race)
- Medical history (with a particular emphasis on conditions which may be barriers to change)

- Importance, confidence, and readiness to change (more on these concepts in Chapter 4)
- Weight control history
- Problem nutrition behaviors and barriers
- Problem physical activity behaviors and barriers

After completion of the questionnaire, an individualized patient report written at the 6th grade level summarizes strengths and problem areas relevant to weight management and provides brief tips and suggested handouts for identified barriers.

A staff report that includes the same information in the patient report but in a briefer format is also generated. It also highlights issues that require further staff evaluation and/or treatment. This report includes the list of relevant patient handouts with direct links to the handouts on the *MOVE!* website. Recommendations for supporting self-management (Level 1 *MOVE!*) are also given.

One of the best ways to get a better feel for the *MOVE!23* is to try it for yourself. You can go to the *MOVE!* intranet website and choose "Test" or "Demo" facility. You can use your own name or make up a "test" name. Please use the SS# 000-00-000 for any "test" runs that you do.

The *MOVE!23* can be administered to veterans using paper and pencil, but this option should only be reserved for cases in which the veteran absolutely cannot use a computer. All paper and pencil administrations will require a staff member to enter item responses in order to generate the tailored reports. In pilot studies of *MOVE!*, most veterans were able to take the *MOVE!23* on the computer; only some required staff assistance. See the ***MOVE!* Quick Start Manual** for ideas about how to make the *MOVE!23* easily accessible to veterans on a computer. A paper and pen version of the *MOVE!*23 is provided in Appendix 1.

3.1.c Domains and items assessed on the *MOVE!23*

This section provides some additional detail about specific items on the *MOVE!23*. Items are grouped into general domains below:

- Medical history and status (items 2 and 3)
- Weight control expectations and history (items 1, 4, 5, 6, 7, 12, 13, 14)
- Behavior change readiness and assets (items 8, 9, 10, 11)
- Nutrition behaviors and barriers (items 15, 16, 17, 18, 19, 20, 21)
- Physical activity behaviors and barriers (items 22 and 23)

Each item in the section that follows is annotated with respect to the following:

(1) Actual question on the *MOVE!23*

(2) Response options available for the veteran to choose from

(3) Brief summary of the message the veteran receives on his or her patient report and the message that appears on the staff report

(4) Source of item if adapted from somewhere else or rationale for item if empirically derived

Medical history and status (items 2 and 3)

Item 2. In general, would you say that your health is:
a. _____ Excellent

b. _____ Very Good
c. _____ Good
d. _____ Fair
e. _____ Poor

Patient report: none
Staff report:
Veteran reports current health to be (excellent) (very good) (good) (fair) (poor)

Item rationale and source: This is the first item on the SF-36©, a measure commonly used to assess quality of life and health status. This single item alone is correlated with healthcare utilization and mortality.

Item 3. Please indicate (with a check mark to the left) any of the following that apply to you:

_____Shortness of breath at rest
_____Chest pains not previously evaluated by your doctor
_____Active infection of any kind
_____Hernia in the groin or belly area
_____Retinal hemorrhage (bleeding in the back of the eye)
_____Loss of balance because of dizziness or passing out
_____Any chronic medical problem that has recently been out-of-control, unstable or flared up
_____Arthritis or joint pain
_____Back pain or spinal disc disease
_____Osteoporosis or bone disease
_____Amputation
_____Spinal cord injury
_____Lung disease (emphysema, COPD, or asthma)
_____Heart disease such as heart failure, heart attack or angina, heart surgery or angioplasty, irregular heartbeat, implanted defibrillator or pacemaker, heart valve problems
_____Poor blood circulation in the legs
_____Stroke or TIAs (mini-strokes) or carotid artery surgery in the neck
_____Diabetes – even if controlled by medication or diet
_____High blood pressure - even if controlled by medication or diet
_____High blood cholesterol - even if controlled by medication or diet
_____ Someone in your immediate family with heart problems at an age younger than 50

_____Too much stress
_____General unhappiness
_____Depression
_____Anxiety problems or nervousness
_____Family or relationship problems
_____Bipolar disorder (Manic depressive disorder)
_____Schizophrenia
_____Post traumatic stress disorder (PTSD)
_____Obsessive/compulsive disorder
_____Eating disorder/binge eating/anorexia/bulimia
_____Tobacco Use/Smoking
_____Substance Abuse or Dependence
_____None of these

Patient Report: Depending on which conditions the veteran endorses, he/she will receive one or more of the following messages.

Physical Activity Precautions:

You reported the following medical issue(s) that you should discuss with your doctor before beginning a program of increased physical activity: *list of endorsed conditions*

It is probably safe for you to begin mild to moderate exercise. You have some medical issues that may limit the types of activities you can safely do. Please discuss the following medical issue(s) with your *MOVE!* healthcare team: *list of endorsed conditions*

It is probably safe for you to begin mild to moderate exercise. You have some medical issues that may limit the types of activities you can safely do. You should see your doctor before starting any heavy or vigorous activities. Please discuss the following medical issue(s) with your *MOVE!* healthcare team: *list of endorsed conditions*

Mental Health Problems:

Problems of an emotional nature often lead to weight gain. There are better ways of dealing with negative thoughts and feelings. If you are stressed most of the time, ask your medical provider about available treatments. The *MOVE!* handouts *(B28) Stress, Anxiety, and Depression*, *(B12)*

Emotions and Your Weight, *(B29) Take Control of Your Thoughts, Feelings and Behavior*, and *(B22) Psychiatric Conditions* may be helpful.

You indicated that you may have an eating disorder. Specialized treatment may be available at your VA facility. Please tell your primary care provider about this.

Quitting tobacco use is important for your health. The *MOVE*! handouts *(M04) Quitting Smoking is a Healthy Choice* and *(B23) Quit Smoking - Gain Weight*? may be helpful.

You indicated a problem with substance abuse or dependence. This can make managing your weight a challenge. Discuss this further with your *MOVE*! healthcare team.

Staff Report: If veterans indicate conditions which are contraindications to physical activity without further evaluation (See the *MOVE!* Physical Activity Decision Aid) then one or more of the following message is displayed:

Physical Activity Precautions:

The veteran is reporting the following: *list of endorsed conditions*
Although the patient can work on nutrition issues, increased physical activity is not recommended without further evaluation by the primary care provider. Primary care providers can refer to the *Physical Activity Readiness-Medical Exam (PARmed-X)* and the *Pre-Exercise Cardiovascular Risk Stratification Guide* for guidance about exercise stress testing and conditions requiring medically supervised exercise.

The veteran is reporting the following: *list of endorsed conditions*
The veteran should check with the primary care provider before doing strength or flexibility exercises. This includes exercises using free weights, specialized machines or resistance type exercises like sit-ups. *Plus/Minus the following*: A consultation to physical therapy, kinesiotherapy, or physical medicine and rehabilitation is recommended to design an individualized program.

The veteran can begin moderate physical activity without a medical evaluation assuming good control of any chronic conditions. The primary care provider should perform a medical evaluation before the veteran starts any vigorous physical activity.

Mental health problems:

The veteran is reporting the following: *list of endorsed conditions*
Poor control of any of these issues may make changing behaviors related to weight management more difficult for the veteran. Discuss with veteran whether further evaluation and treatment for any of these issues is needed and/or wanted. The following *MOVE!* Handouts may help:
(B12) Emotions and Your Weight
(B28) Stress, Anxiety, Depression
(B29) Take Control of Your Thoughts, Feelings and Behavior
(M04) Quitting Smoking is a Healthy Choice and *(B23) Quit Smoking- Gain Weight?*
(B22) Psychiatric Conditions
(B16) Tempted, (B24) Control Yourself

The veteran is reporting problems with or a history of an eating disorder such as binge eating, bulimia, or anorexia. The veteran should check with their primary care provider before beginning any weight management program.

Item rationale and source: Medical contraindications to various types of physical activity are from recommendations issued by the American College of Sports Medicine, American Heart Association, American College of Cardiology, and the Canadian Society for Exercise

Physiology. Mental health problems assessed are those that may present competing demands for staff and patient attention or may pose barriers to changing nutrition and physical activity barriers in a safe and healthy way.

Weight Control Expectations and History (items 1, 4, 5, 6, 7, 12, 13, 14)

Item 1. I consider myself to be (check one):

a. _____ Underweight for my height and age
b. _____ Normal weight for my height and age
c. _____ Overweight for my height and age

Patient report: none

Staff report: If veteran selects underweight or normal weight then the following message is displayed:

> Veteran's BMI is *X* but veteran considers self as *underweight or normal weight*. Educate veteran on medical classification of overweight/obesity using BMI and address any remaining inconsistency.

Item rationale and source: This item was empirically derived to measure patient self-perception of weight to allow staff to address any inconsistencies with actual weight and health risk.

Items 4 and 5. Past and current attempts at weight control.

For these items, the veteran is asked about their prior history and current attempts with weight control. Methods listed include:

Some form of dieting, i.e., eating differently from the way you usually eat for the sake of losing weight
Avoiding particular foods or food groups
Physical exercise, such as walking, swimming or calisthenics
Prepackaged meals
Meal replacements in bar, powder, liquid, tablet/pill or water form
Fasting for 24 hours or longer
Skipping meals
Hypnosis
Comprehensive weight loss program with dietary, physical activity, and behavioral counseling
Any other kind of weight loss program that does **NOT** provide comprehensive treatment
Keeping a log or journal for eating or exercise
Causing yourself to vomit after you eat
Cosmetic procedure such as liposuction or other
Weight loss medical procedure such as gastric bypass, gastric banding, wiring of your jaw or other

Patient Report: none

Staff Report: list of endorsed methods past and present are given.

> You may want to discuss with veteran what worked and what didn't work for him in the past and the pros and cons of various methods he has tried or is currently using.

Item rationale and source: Experience working with weight management patients helped to form this question. Any methods used by patients past and/or present of should be recognized and addressed. Success or failure could affect progress with *MOVE!* in regard to the patients' readiness and motivation for change; preconceived notions of weight control, physical activity, diet and nutrition; as well as nutrition and health status.

Item 6. Select the answer that best describes your rate of weight gain over the years.

a. _____ I have been overweight since childhood (before age 18).
b. _____ I have gained weight gradually over the years.
c. _____ I have gained most of my excess weight in a short period of time.
d. _____ I have gained and lost weight many times over the years ("yo-yo").

Patient report: Veteran receives one of the following responses:

> You indicated that you have been overweight since you were a child. It is possible that you may have inherited a tendency to gain weight easily or perhaps you may have been encouraged to overeat, and/or be physically inactive. Either way, don't be discouraged. There is a great deal you can do to reach and maintain a healthy weight with the *MOVE!* Program.
>
> Most people gain weight as they age, because they are less physically active and eat more. Gradual changes in physical activity and eating habits can change this pattern. Refer to *(S01) Basics of Weight Control* and other *MOVE!* handouts for guidance.
>
> You indicated that you have gained much of your excess weight in the last few years. This could happen for a number of reasons. A stressful event (quitting smoking, job change, retirement, injury, loss of someone close to you, etc.) sometimes causes people to eat unhealthy or be less active. Finding better ways to deal with these stressful situations would be helpful. Talk to your *MOVE!* healthcare team.
>
> You indicated that you have gained and lost weight over and over again. In the *MOVE!* Program, we encourage you to make changes in your eating and physical activity that you can maintain. The *MOVE!* handout *(M01) Skip the Fad Diet* can help.

Staff report: Veteran reports weight gain pattern as:
since childhood
gradual over the years (S01) *Basics of Weight Control*
in a short period of time. *Staff are instructed to help veteran identify cause(s).*
multiple loss and gain cycles (yo-yo) (M01) *Skip the Fad Diet*

Item rationale and source: This item was empirically derived to help staff and patient put their weight gain pattern in a larger perspective.

Item 7. Select the answer that best describes your family:
a. _____ As a group, my family is not overweight or obese.
b. _____ As a group, some members of my family are overweight or obese.
c. _____ As a group, most members of my family are overweight or obese.

Patient report: If veteran answers choice (b) or (c) he/she receives the following message:

> Genetics and family habits may have played a role with your weight. The *MOVE!* Program gives you tools and resources to reach and maintain a healthy weight. You can do it!

Staff report: If veteran answers choice (c) the following is displayed:

> Most members of veteran's family are overweight.

Item rationale and source: This item was empirically derived to provide staff with a sense of how much of the veteran's overweight or obesity might be attributed to genetic factors. The extent to which familial obesity is a product of genes versus a product of a common environment cannot be discerned from this item alone. Furthermore, this question provides staff with an idea of what sorts of social barriers the patient might have to beginning a program of weight management.

Item 12. How much weight do you think you realistically **could lose** in one year?

a. _____ 10 lbs or less
b. _____ 11 – 25 lbs
c. _____ 26 – 50 lbs
d. _____ 51 - 100 lbs
e. _____ more than 100 lbs

Patient report: The veteran receives one of the following responses:

> You indicated that you think you can lose 10 lbs or less in one year. Your expectations for losing weight are very realistic. In general, people can safely lose ½ -2 pounds a week, on average, if they work at it. Go for it!
>
> You indicated that you think you can lose 11-25 lbs in one year. Your expectations for losing weight are realistic. In general, people can safely lose ½ -2 pounds a week, on average, if they work at it. Go for it!
>
> You indicated that you think you can lose 26-50 lbs in one year. Your expectations for losing weight appear to be realistic. In general, people can safely lose ½ -2 pounds a week, on average, if they work at it. Go for it!
>
> You indicated that you think you can lose 51-100 lbs in one year. While realistically a loss of ½ -2 pounds a week can be safely accomplished, this rate of weight loss is hard to maintain over a long period of time. Smaller weight loss goals over a shorter time period may be more easily achieved. Refer to the *MOVE!* handout *(S02) Set Your Weight Loss Goals.*
>
> You indicated that you think you can lose more than 100 lbs in one year. You may be expecting to lose more weight in one year than is probably realistic. This may lead to disappointment and is a sure-fire way to lose your motivation. We don't want that! Realistically, a loss of ½ -2 pounds a week, on average, can be safely accomplished. Smaller weight loss goals over a shorter time period may be more easily achieved. See the *MOVE!* handout *(S02) Set Your Weight Loss Goals.*

Staff report: If the veterans responds with choice (d) or (e) then the following message is displayed:

> Weight loss expectations may be unrealistic. Remind veteran of the health benefits of even small amounts of weight loss. In general, people can safely lose ½ -2 pounds a week, on average, if they work at it. See *MOVE!* Handout *(S02) Set Your Weight Loss Goals*.

Item rationale and source: NIH Guidelines recommend a weight loss rate of ½ -2 lbs per week. This rate is safe, achievable, and maintainable for the long-term. Rates at the higher end of this range are more typical with initial weight loss efforts but may be hard to maintain over the course of many months. Thus, over the course of a year a realistic amount of weight loss is in the range of 26-52 lbs or less.

Item 13. How satisfied are you with the appearance of your body?

a. _____ Very satisfied
b. _____ Moderately satisfied
c. _____ Neither satisfied or dissatisfied
d. _____ Moderately dissatisfied
e. _____ Very dissatisfied

Patient report: You indicated that you are *(moderately dissatisfied)* or *(very dissatisfied)* with the appearance of your body. Many people focus more on their flaws than on their good features. Focus on the positive! The *MOVE!* handout *(B08) Body Image* may help.

Staff report: If the veteran answers choice (a) or (b) then the following is displayed:

> Veteran is very satisfied or moderately satisfied with the appearance of his or her body. While it is good that the patient is satisfied with their physical presentation at this time, from a health perspective their excess weight places them at greater risk. While a negative body image is not desired, you should be aware of the mismatch between the patient's self-perception of appearance and their apparent lack of discomfort with excess weight.

If the veterans answers choice (d) or (e)

> Veteran is moderately dissatisfied or very dissatisfied with the appearance of his or her body. Help the veteran to focus on positive features rather than dwell on the negatives. See the *MOVE!* handout *(B08) Body Image* for more information. For some patients, dissatisfaction with body appearance can be used to increase motivation and strengthen commitment.

Item rationale and source: This item was empirically derived as a measure of body image satisfaction. The mismatch between being satisfied with current body image and health risks might be leveraged to create some patient discomfort. Patient dissatisfaction with current body image can be leveraged to increase motivation.

Item 14. . Do any of the following have anything to do with your being overweight?
Check all that apply to you.

a. _____Eating because of emotions or stress
b. _____Family or relationship problems
c. _____Boredom
d. _____Loneliness or Loss of loved one
e. _____Eating too much
f. _____Poor food choices or habits
g. _____Not getting enough physical activity
h. _____Difficulty with self control
i. _____Hungry all the time
j. _____Feeling bad about myself
k. _____Love to eat
l. _____Quitting tobacco use
m. _____Pregnancy/Childbirth
n. _____Illness or injury
o. _____Medications led to weight gain
p. _____Other
q. _____None of the above

Patient report: Veterans who endorse anything other than choice (q) receive a tailored response recognizing the barrier(s) and offering suggestions for addressing the barrier(s) including appropriate *MOVE!* handouts. A veteran who answers (p) will be advised to talk further with their *MOVE!* healthcare team.

Staff report: Reasons given by veteran for his/her overweight/obesity: *list of endorsed answers*

Item rationale and source: This list of causes are a combination of medical, behavioral, nutrition, and physical activity factors that are associated with being obese or overweight. This item doesn't measure "actual" causes for the patient's overweight or obesity, just the factors that the veteran perceives to be related to his/her own obesity.

Behavior change readiness and assets (items 8, 9, 10, 11)

Item 8. How much can you rely on family or friends for support and encouragement?

a. _____ A lot
b. _____ Somewhat
c. _____ Not at all

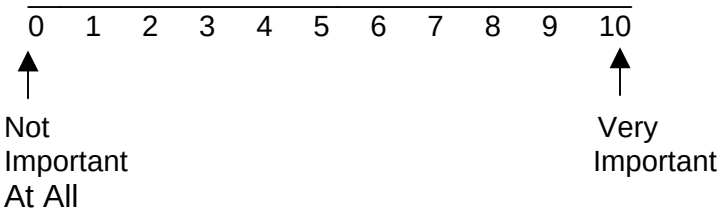
Patient report: Depending on the answer selected the veteran receives one of the following messages:

> You indicated that you can rely on family or friends for support and encouragement a lot. Great! Use them for support.
>
> You indicated that you can rely on family or friends for support somewhat. It may be helpful for you to find others who will also give you support and encouragement as you work on weight control. *MOVE!* can also offer you support. The *MOVE!* handout *(B27) Involving Others in Your Weight Control Program* offers tips on getting the support you need.
>
> You indicated you can't rely on family and friends for support and encouragement. It may be helpful for you to find others who will give you support and encouragement as you work on weight control. *MOVE!* can also offer you support. The handout *(B27) Involving Others in Your Weight Control Program* offers tips on getting the support you need.

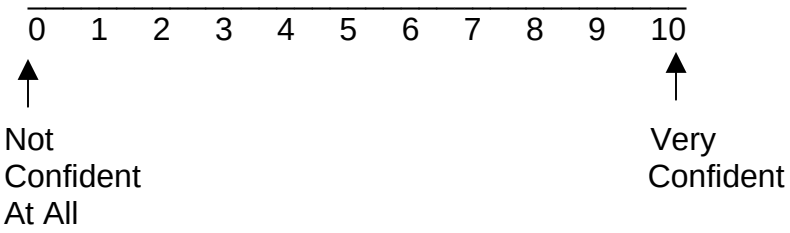
Staff report: Can rely on friends and family for support: *(A lot) (Somewhat) (Not at all)*

Item rationale and source: This item gauges self-perceived social support which is a factor for maintaining health behavior changes.

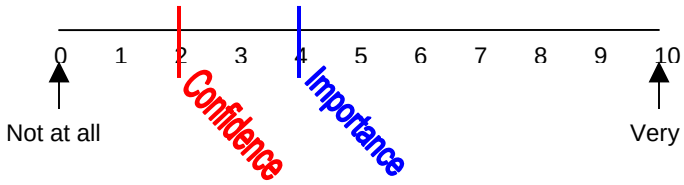
Items 9 and 10. How important is controlling your weight to you personally? Please circle the number that applies. Please do not place a circle in the space between numbers.



How confident are you that you can successfully change your eating and physical activity to control your weight? Please circle the number that applies. Please do not place a circle in the space between numbers.

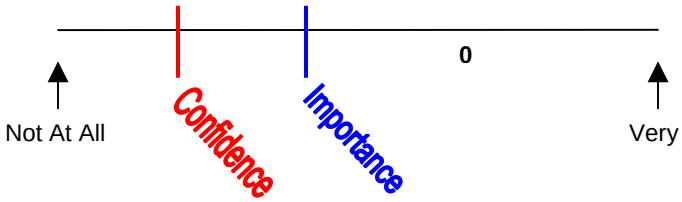


Patient report: The chart below indicates how you rated the importance of weight management to you personally and your level of confidence in your ability to change behaviors related to weight management.



If you rated "importance" or "confidence" in the middle or low range, don't feel bad. Many people who are starting with weight management often feel the same way. The more important weight management becomes to you and the more confidence you gain, the more likely you will be successful. Talk with your *MOVE!* healthcare team about what help you might need.

Staff report: The veteran rated the importance of and confidence for changing weight management behaviors as follows:



Item rationale and source: The assessment of importance and confidence for health behavior change comes out of literature that suggests that these are two important determinants of "readiness for change" as described by the Prochaska et al. Transtheoretical Stages of Change Model. Exploring and raising importance and/or confidence can help advance patients on the continuum of precontemplation, contemplation, preparation, action, and maintenance. Exploring and raising importance and confidence using the scale from 0-10 is a contemporary method of motivational counseling that is being promoted for "brief behavioral interventions" in primary care and other medical care settings. Its origins lie within the Motivational Interviewing methods originally described by Rollnick and Miller.

Item 11. Check the statement that **most closely** applies to you:

a. _____ I am not considering trying to control my weight at this time.
b. _____ I am considering trying to control my weight sometime within the next six months**.**
c. _____ I am ready to make some changes to control my weight*.*
d. _____ I am actively working on controlling my weight at this time.
e. _____ I have been continuously and successfully doing things to control my weight for more than the last six months.

Patient report: Depending on how the veteran answers, he/she receives one of the following messages:

> You answered that you are not considering trying to control your weight at this time. That's OK. You need to feel ready before making such a major effort. *MOVE!* handout *(B02) So, You're Not Ready Yet?* should be helpful.
>
> You answered that you are considering working on weight control sometime within the next six months. Great! The *MOVE!* Program will help when you are ready. You may be interested in the *MOVE!* handout *(B03) So….You're Thinking About It!*.
>
> It appears that you are ready to begin working on controlling your weight. Super!! Ask for the *MOVE!* handout *(B04) Getting Ready to Lose Some Weight?.*
>
> You answered that you are already working on controlling your weight at this time. Excellent!! Keep it up! Using the *MOVE!* Program will help you continue to do that. Ask for the *MOVE!* handout *(B05) Yes..Now You're doing it!.*
>
> You have been successfully working on controlling your weight for some time now. Excellent!! Keep it up! Ask for the *MOVE!* handout *(B06) Yes..You Can Keep That Weight Off!*. The *MOVE!* Program can provide support if you need it.

Staff report: Depending on the veteran's response, staff receive one of the following messages:

> The veteran checked that he/she is not considering trying to control their weight at this time. Using the patient's ratings of importance and confidence above, ask what it would take for the patient to rate these items 1-2 points higher than they rated them. Also, ask what kept them from rating these items 1-2 points lower than they did. Gently advise the patient of the risks of overweight/obesity and give them the *MOVE!* Handout *(B02) So, You are not Ready Yet.*
>
> The veteran checked that he/she is considering trying to control their weight at this time. Using the patient's ratings of importance and confidence above, ask what it would take for the patient to rate these items 1-2 points higher than they rated them. Also ask what kept them from rating these items 1-2 points lower than they did. Gently advise the patient of the risks of overweight/obesity and give them the *MOVE!* Handout *(B03) So, You are Thinking About It*. Reassess their readiness to begin the *MOVE!* Weight Management Program at the end of your visit or on the next primary care visit.
>
> The veteran checked that he/she is ready to make some changes to control weight. Congratulate the veteran and support self-efficacy. If importance or confidence is rated in the mid or low range, ask the veteran what it might take to rate them 1-2 points higher. See *MOVE!* Handout *(B04) Getting Ready to Lose Some Weight?*

The veteran checked that he/she is actively working on weight management at this time. Congratulate the veteran and support self-efficacy. If importance or confidence is rated in the mid or low range, ask the veteran what it might take to rate them 1-2 points higher. See MOVE! Handout *(B05) Yes..Now You're Doing it!*

The veteran checked that he/she has been continuously and successfully managing weight for the last six months. Congratulate the veteran and support self-efficacy. If importance or confidence is rated in the mid or low range, ask the veteran what it might take to rate them 1-2 points higher. See *MOVE!* Handout *(B06) Yes ..You Can Keep that Weight Off!*

Item rationale and source: This single item asks patients to assign themselves to one of the stages of readiness to change as described by Prochaska et al's Transtheoretical Stages of Change Model. Assessing the patient's stage of change is essential as it allows for targeted counseling messages appropriate to the patient's stage.

Nutrition behaviors and barriers (items 15, 16, 17, 18, 19, 20, 21)

Item 15. What do you think may get in the way of **changing** your **eating** habits? Check all that apply to you.

a. _____Eating food from restaurants, fast food places, convenience stores, vending machines
b. _____Person who prepares my food is uncooperative or unsupportive
c. _____Too much high calorie food available at home or work
d. _____Too little time to prepare and eat healthy food
e. _____Too little money to buy healthy food
f. _____Feeling hungry much of the time
g. _____Used to eating a certain way
h. _____Difficulties such as stress or depression
i. _____Being with others who overeat
j. _____Don't know how
k. _____Other
l. _____Nothing should get in the way

Patient report: Veterans who endorse anything other than choice (l) receive a tailored response recognizing the barrier(s) and offering suggestions for addressing the barrier(s) including appropriate *MOVE!* handouts. A veteran who answers (k) is advised to talk further with their *MOVE!* healthcare team.

Staff report: Reported Barriers to Changing Eating Habits: *list of endorsed answers. MOVE!* handouts are available for some of these issues.

Item rationale and source: Responses to these items were chosen because they are recognized as common barriers to changing eating habits to support weight management.

Item 16. How many times a **day** do you typically eat, including snacks?

a. _____ 1 time a day
b. _____ 2 times a day
c. _____ 3 times a day
d. _____ 4 times a day
e. _____ 5 or more times each day

Patient report: Patients who respond that they eat 3 times a day or less are offered this message.

It would be better for you to eat more frequently. A healthy eating pattern for weight loss is to eat 5 - 6 small healthy meals or snacks each day, avoiding high calorie foods. See the *MOVE!* handout (N22) Nutrition Tips for more information.

Patients who respond that they eat 4 times a day or more are offered this message:

You eat (relatively frequently) or (frequently), and that is good as long as you eat small, healthy meals or snacks. Be careful to limit high calorie foods.

Staff report: For veterans who answer 3 times a day or less, this message appears on the staff report. Veteran may be eating too infrequently. Veteran should aim for 5-6 small, healthy meals or snacks each day. *(N22) Be A Frequent Feeder.*

Item rationale and source: With less frequent meals or skipping of meals, hunger can grow such that one becomes ravenous and is prompted to overeat. With such intense hunger, it can be tempting to go for the first available item, which may be high in calories and fat. With a healthy eating pattern of 5 to 6 **small** meals or snacks a day, one can sustain energy, keep blood sugar levels in check, and reduce temptations for less nutritious choices.

Item 17. How many times per week do you eat at restaurants or buy 'take out' food?
Please indicate on the line below the number of times between 0 and 21. Consider breakfast, lunch and supper 7 days a week for a total of 21 meals for which restaurant or take out food could be eaten. If they answer "1" or "2" then a follow-up question asks: When you eat out, do you find that you overeat or eat higher calorie foods?

Patient report: If patients answer 3 or more times per week or 1-2 times with high calorie food then they are provided the following message.

Eating restaurant or take-out food can make controlling weight hard due to the large portions of high calorie food. People will often eat the entire amount they buy. Healthy eating is possible with careful attention to food choices and smaller portions. Ask for *MOVE!* handouts *(N25) Restaurant Tips* and *(N07) Fast Food Alternatives*.

Staff report: Veteran may be eating out or buying food to go frequently. This often can lead to overeating or eating higher calorie foods. *(N25) Restaurant Tips*, *(N07) Fast Food Alternatives* . Veteran reports overeating or eating higher calorie foods when eating out.

Item rationale and source: Empirically derived based on the fact that eating restaurant or take-out food can make controlling weight hard due to the large portions of high calorie food. Item encourages the possibility of healthy restaurant eating with careful attention to food choices and smaller portions.

Items 18 and 19.

18. How much sugar-sweetened soda, tea, juice, juice-drinks, or other beverages do you drink **most days**?

a. _____ I don't drink drinks sweetened with sugar or juice.
b. _____ 1 – 2 cups, cans, small bottles or drink boxes per day
c. _____ 3 or more cups, cans, small bottles or drink boxes per day

19. Do you drink alcoholic beverages (such as beer, malt liquor, wine, wine coolers, hard/distilled liquor)?

a. _____ Yes
b. _____ No

Patient report: For responses 18 (b) or (c) or 19 (a) veterans are provided the following message:

> You may be taking in *(a huge number of)* unnecessary calories by drinking sugar-sweetened soda, tea, juice, or other sugary beverages. Try switching to water or other sugar-free drinks. Sugar-free drinks may taste slightly different at first, but you will get used to the new taste quickly. Ask for the *MOVE!* handouts *(N17) Liquid Calories* and *(N31) Water-Drink Up*.
>
> Alcoholic beverages add "empty" calories which can make controlling your weight difficult. The *MOVE!* handout *(N17) Liquid Calories* has more information. The *MOVE!* handout *(N31) Water-Drink Up* may also be helpful.

Staff report: Veteran may be consuming unnecessary liquid calories from sweetened soda or juice or alcohol *(N17) Liquid Calories, (N31) Water-Drink Up.*

Item rationale and source: Consumption of sugar-sweetened beverages is often a problem behavior for those who are overweight. Often, individuals are unaware of the significance of their intake in the form of liquid calories. This item roughly measures such intake. Veterans are advised that they may be consuming unnecessary liquid calories and that they should consider water, artificially sweetened, and/or calorie-free alternatives. Question 19 is designed to assess "liquid calories" from alcohol rather than problem alcohol use; thus, the dichotomous response option of yes/no. Currently, screening for problem alcohol use is conducted within primary care settings using the AUDIT-C tool.

Item 20. How **fast** do you usually eat?

a. _____ I eat slowly
b. _____ I eat at a moderate pace
c. _____ I eat fast

Patient report: Patients receive one of the following messages:

> You eat slowly. This is good and is an important skill for weight control. Keep it up!
>
> Eating too quickly may result in eating too much. Everyone can benefit from eating slowly and truly tasting and enjoying what they eat. If you eat too quickly, the *MOVE!* handout *(B26) Slow Down… You Eat Too Fast*… may help.
>
> Eating too quickly may result in eating too much. Everyone can benefit from eating slowly and truly tasting and enjoying what they eat. If you eat too quickly, the *MOVE!* handout (*B26) Slow Down… You Eat Too Fast*… may help.

Staff report: If the veteran answers with choice (b) or (c) they receive the following message: Veteran may be eating too quickly *(B26) Slow Down, You Eat Too Fast.*

Item rationale and source: With faster eating there is a reduced ability to regulate the amount eaten. Slower eating allows for visual cues to help regulate consumption as well as satiety messaging. It takes approximately 20 minutes for the signal from the stomach to

reach and register in the brain satiety/fullness. Veterans who select options b and c are cautioned in regard to the temptation to over consume when eating rapidly and advised to slow down and enjoy their food.

Item 21. On average, how often have you eaten extremely large amounts of food at one time and felt that your eating was out of control at that time?

a. _____ Never
b. _____ Less than 1 time per week
c. _____ 1 time per week
d. _____ 2 to 4 times a week
e. _____ 5 or more times a week

Patient report: If the veteran answers 1 time per week or more they are given the following message:

> You may have problems with binge eating, which is eating extremely large amounts of food at one time and feeling like you can't control yourself. Your *MOVE!* healthcare team can help you concentrate on how to control your impulses to eat. The *MOVE!* handouts called *(B24) Control Yourself!!* and *(B16) Tempted* may also help.

Staff report: If veteran reports binge-eating 1 or more time per week, this finding is highlighted on the "red flags" section of the Staff Report.

Item rationale and source: This item is a single item assessment for binge-eating behavior. This item alone is not sufficient to screen for or diagnose binge-eating disorder, a DSM classified condition with specific criteria. Veterans who indicate a frequency of binge-eating 1 or more times per week should be further evaluated for the presence of binge-eating or other eating disorders. The Questionnaire on Weight and Eating Patterns (QWEP-R©) available on the *MOVE!* website is an instrument that can be administered for the diagnosis of binge-eating disorder by DSM criteria when followed up with a targeted clinical interview by a qualified professional.

Physical activity behaviors and barriers (items 22 and 23)

Item 22. What do you think may get in the way of **changing** your **physical activity** habits? Check all that apply to you.

a. _____ Too little time
b. _____ Too little money
c. _____ Safety concerns
d. _____ No place to walk or be active
e. _____ No transportation
f. _____ Lack of support or encouragement from others
g. _____ Difficulties such as stress, depression, etc.
h. _____ Do not like to exercise
i. _____ Daily habits or routines that do not include exercise
j. _____ Pain
k. _____ Amputation
l. _____ Back problems
m. ____ Arthritis
n. _____ Muscular problems
o. _____ Heart or lung disease
p. _____ Joint problems
q. _____ Spinal cord injury
r. _____ Too tired
s. _____ Job or work schedule
t. _____ Other
u. _____ Nothing should get in the way

Patient report: Veterans who endorse anything other than choice (u) receive a tailored response recognizing the barrier(s) and offering suggestions for addressing the barrier(s) including appropriate *MOVE!* handouts. A veteran who answers (t) will be advised to talk further with their *MOVE!* healthcare team.

Staff report: Reported Barriers to Changing Physical Activity Habits: *list of endorsed answers. MOVE!* handouts are available for some of these issues

Item rationale and source: Responses to these items were chosen because they are recognized as common barriers to changing physical activity habits in support of weight management.

Item 23. This next question asks about your physical activity habits. There are two types of activity to consider:

- Moderate physical activities cause light sweating and a slight to moderate increase in breathing or heart rate. Examples include brisk walking, bicycling, vacuuming, gardening, and golfing without a cart.

- Vigorous activities cause heavy sweating and large increases in breathing or heart rate. Examples include running, aerobic classes, heavy yard work, and briskly swimming laps.

a. How many days per week do you do moderate activities for at least 10 minutes at a time? Please circle the appropriate number. Please do not place a circle in the space between numbers.

0 1 2 3 4 5 6 7

b. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

a. _____10-19 minutes
b. _____20-29 minutes
c. _____30-59 minutes
d. _____>=60 minutes

c. How many days per week do you do vigorous activities for at least 10 minutes at a time? Please circle the appropriate number. Please do not place a circle in the space between numbers.

0 1 2 3 4 5 6 7

d. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

a. _____ 10-19 minutes
b. _____ 20-29 minutes
c. _____ 30-59 minutes
d. _____>=60 minutes

Patient report: Patients who are meeting the Surgeon General's Recommendations for Physical Activity for Health Benefits (Moderate activity for at least 30 minutes on 5 or more days per week) are offered this message:

> You are already meeting the Surgeon General's recommendation for physical activity for health benefits. This is great! Talk with your *MOVE!* healthcare team about increasing the duration, intensity, or frequency of activity in order to use physical activity to manage your weight.

All others are offered this message:

> For health benefits, the Surgeon General recommends at least 30 minutes of moderate physical activity on 5 or more days per week. With the help of your *MOVE!* healthcare team, you can build-up to this level slowly and safely.

Staff report: The patient reports:

> XX Minutes of Moderate Activity on XX Days per week
> XX Minutes of Vigorous Activity on XX Days per week

Item rationale and source: This item is taken from the CDC's Behavioral Risk Factor Surveillance System telephone survey and adapted slightly to allow for written/on-line administration. Veterans can be classified as sedentary, irregularly active (at moderate or vigorous intensity, or regularly active (at moderate or vigorous intensity).

3.2 Medical evaluation

Veterans may be referred to their primary care provider based on how they answered some items on the *MOVE!23,* based on the *MOVE! Physical Activity Decision Aid* (Figure 15, Chapter 6), or based on other factors as judged by a member of the *MOVE!* healthcare team. For the most part, patients who have been referred for a medical evaluation have already been identified by staff as being "at risk" for complications due to overweight/obesity based on BMI and have expressed an interest in changing behaviors related to weight management. Therefore, the focus of the medical evaluation is not to discuss at length the risks of obesity and benefits of weight loss or treatment of obesity-related conditions. The purpose of the medical evaluation is to:

1. Identify reversible causes for the patient's obesity.
2. Further stratify patients with respect to risk for obesity-associated complications.
3. Assess the clinical safety of planned health behavior changes based on the patient's clinical condition.
4. Identify and treat medical conditions that may be barriers to the patient's success. An evaluation for or review of obesity-associated conditions may certainly be warranted, but depending on time, may require a separate visit to accomplish.

The medical evaluation consists of a review of the patient's history, a physical exam, and when indicated, laboratory testing and/or diagnostic imaging. You can use information from the *MOVE!23* Staff Report as a starting place for reviewing the patient's weight-related history.

3.2.a History

Medical history should focus on medical conditions that may cause obesity or that might result from obesity, as well as conditions which require further testing or monitoring before health behavior changes are initiated. This includes review of:

- concurrent disease and review of systems for absolute and relevant contraindications to physical activity and/or dietary changes
- current medications that may be responsible for some weight gain or which may affect physical activity and/or ability to make dietary changes
- brief assessment of self-reported functional capacity and exercise-induced symptoms, if any
- assessment of cardiovascular risk factors

Attention should also be paid to conditions that may be barriers to success in a weight management program. This includes conditions that may interfere with increasing physical activity or conditions which may be aggravated by changes in diet. Depending on severity, almost any medical disorder could potentially be a barrier, so it's important to ask each patient how his medical condition may affect his health behavior change plan. Common barriers include disorders of the gastrointestinal, cardiovascular, and pulmonary system; chronic pain; psychiatric disorders; and musculoskeletal conditions. In addition, it is important to identify conditions for which treatment may need to be modified consequent to weight loss (e.g., diabetes, hypertension).

Family history is important. Genetic factors may influence the capacity or susceptibility for weight gain, but rarely do they account entirely for a person becoming overweight or obese. In families, it is often difficult to discern shared genetic predispositions from shared environmental or behavioral influences.

Social history (profession, cultural background, life style, living environment, eating patterns, smoking, alcohol use, and physical activity) is important to help you form a clinical impression as to the degree of overweight which can be attributed to an underlying medical condition and the barriers to health behavior change that a patient may have.

3.2.b Physical exam

For the purposes of identifying underlying causes for obesity, examination of the skin, thyroid and general body habitus will probably be of highest yield. For physical activity readiness, an examination of at least the cardiovascular, pulmonary, peripheral vascular, and musculoskeletal systems are warranted. The need to examine other organ systems will depend on the history and review of systems.

3.2.c Additional risk stratification

While BMI classification is useful as a preliminary screen to identify patients who may be at higher risk for complications of overweight/obesity, the risk of adverse health events due to obesity is probably more accurately represented on a continuum (see Figure 7). Further risk stratification along the risk continuum can provide a better sense of an individual patient's risk and is most useful when it leads to enhanced patient motivation to participate in weight loss

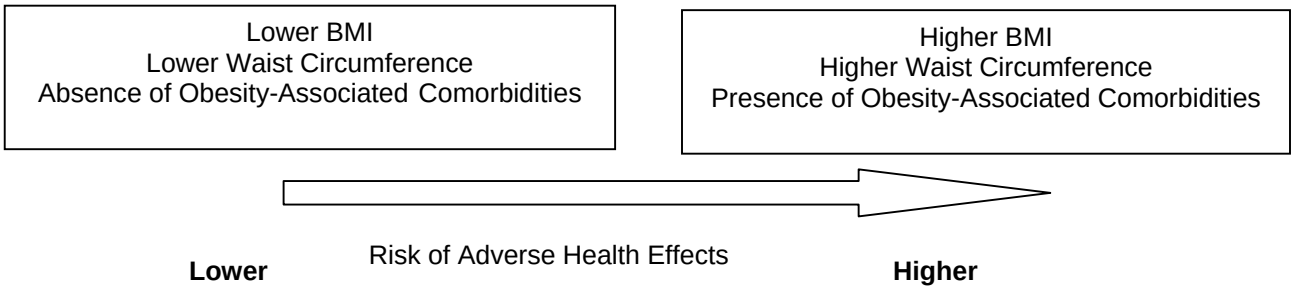
activities, higher intensity treatment of obesity-associated comorbidities, or higher intensity weight loss efforts.

All patients with a BMI ≥ 25 do not have equal risks for obesity-related complications. Higher BMIs are associated with higher risks. In addition, the presence of the following comorbidities describes patients at the very highest absolute risk due to obesity:

- Established coronary heart disease
- Other vascular disease (peripheral or cerebrovascular)
- Type 2 diabetes mellitus
- Obstructive sleep apnea

Other obesity-associated comorbidities are less lethal but still require appropriate clinical therapy.

Figure 7. Obesity risk continuum



The last component of additional risk stratification is assessing the degree of abdominal or centrally deposited fat. This body fat distribution carries a higher metabolic and cardiovascular risk than peripherally deposited fat. BMI does not take into account body fat distribution. Waist circumference is a measurement that can assess abdominal fat and provides an independent prediction of cardiovascular risk over and above that given by BMI alone. Waist circumference is most useful in patients who are normal weight or overweight. It adds very little to risk for patients with BMI ≥ 35.

In patients with BMI 25-35, waist circumference can be used to identify patients at higher risk who may benefit from more intensive weight management efforts and/or clinical management of comorbid conditions or to monitor progress in a weight management program. Decreases in waist circumference even in the absence of changes in weight or BMI indicate progress. Epidemiologic studies suggest that the predictive power of waist circumference varies by race (particularly in men). Waist circumference is less predictive in African-American populations. Figure 8 describes how to measure waist circumference accurately.

Like BMI, increasing waist circumference carries increased risk but for ease of use, sex-specific thresholds have been defined to identify high-risk individuals. These thresholds are:

Men: > 40 inches (102 cm)

Women: > 35 inches (88 cm)

Figure 8.

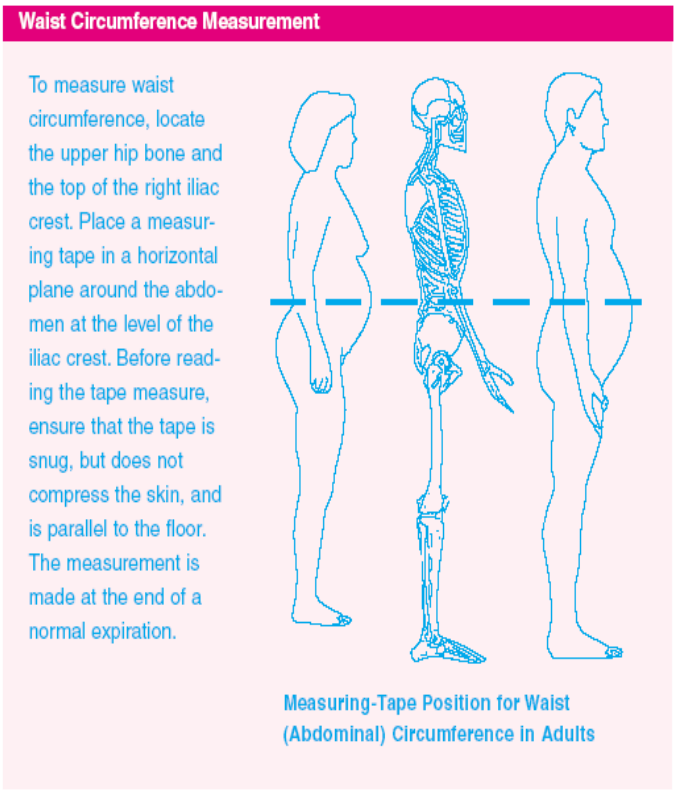


Figure reproduced from the NIH Practical Guide (2000)

To summarize, the patients at the highest risk of complications due to overweight/obesity include those with BMI ≥ 30, excess abdominal fat deposition as measured by waist circumference, established vascular disease, type 2 diabetes, or obstructive sleep apnea. For these patients, more intense efforts to manage these conditions along with other cardiac risk factors, such as blood pressure and lipids, are warranted.

3.2.d Other diagnostic testing

The next step in the medical evaluation is obtaining further diagnostic testing if needed. There is no "standard" battery of tests indicated for patients beginning a weight management program; rather, tests should be ordered based on clinical need to either further evaluate newly identified symptoms, signs, or conditions, or as part of the on-going management of chronic conditions already identified.

For a small subset of patients, the risk of physical activity will exceed the benefits. As the most serious risk of physical activity is a cardiovascular event, cardiac risk stratification of certain patients using a Graded Exercise Test (i.e., GXT, Exercise Stress Test, Treadmill Test) may be warranted. In some cases, consultation with a cardiologist and/or exercise physiologist may be helpful in the decision-making process. The American College of Cardiology, the American Heart Association, and the American College of Sports Medicine have issued guidance on this topic which is summarized in Figure 9. Pre-exercise GXT evaluations may be considered "lower priority" tests when resources are scarce; thus, it may be helpful to discuss and plan with all relevant parties at your facility how this resource will be allocated.

3.2.e Identifying reversible causes of obesity

Reversible causes of obesity that are identified should be treated and monitored as clinically warranted. Endocrine disorders are rarely the sole cause of overweight and obesity. Nonetheless, hypothyroidism, Cushing's Syndrome, insulinomas, hypothalamic tumors, and damage to the hypothalamus as a consequence of radiation, infection, or trauma have all been associated with weight gain.

Certain medications are known to induce weight gain. Drug-induced effects should be suspected when the weight gain coincides with the initiation or dosage increase of a particular medication. If medication is identified as the underlying cause or contributor to overweight or obesity, a medication substitution or change in dosage should be considered whenever possible. Medication induced weight gain and medication adjustments are discussed further in section 3.3 of this manual.

3.2.f Providing medical clearance

Primary care providers who have had patients referred to them for "medical clearance" prior to beginning a program of physical activity can refer to the Physical Activity Readiness Medical Examination (PARmed-X) adapted from the Canadian Society for Exercise Physiology (Figure 10). The PARmed-X is a checklist of medical conditions for which a degree of precaution and/or special advice should be considered. Conditions are grouped by systems and 3 categories of precautions are provided. Comments under "Advice" are general, since details and alternatives require clinical judgment in each individual instance.

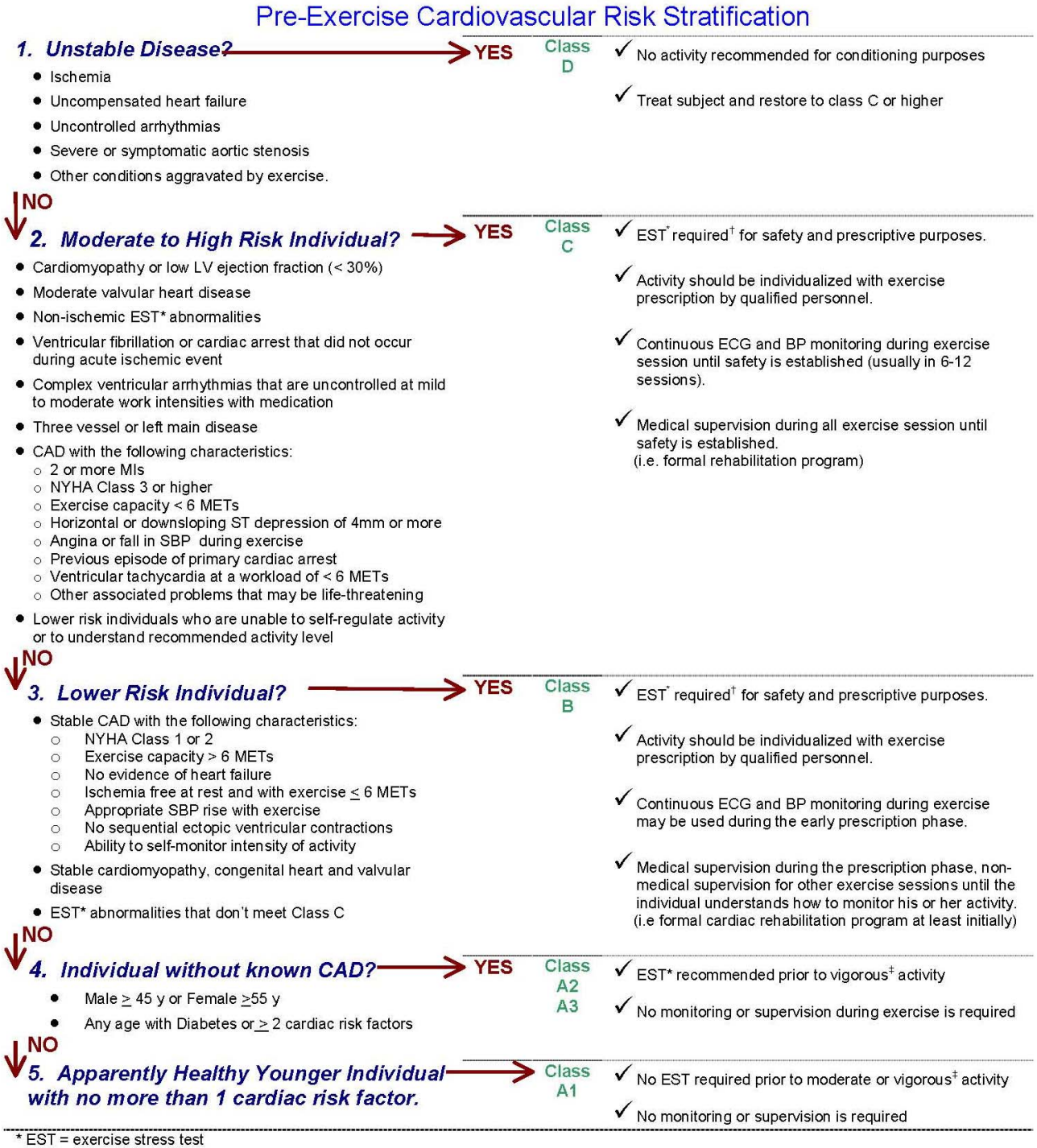
There are very few cases where physical activity is absolutely contraindicated. These include:

- Aortic aneurysm (dissecting)
- Aortic stenosis (severe)
- Crescendo angina
- Decompensated congestive heart failure
- Myocardial infarction (acute)
- Myocarditis (active or recent)
- Pulmonary or systemic embolism (acute)
- Thrombophlebitis
- Ventricular tachycardia and other dangerous dysrhythmias (e.g., multi-focal ventricular activity)
- Acute infectious disease (regardless of etiology)

Relative contraindications to physical activity include:

- Aortic stenosis (moderate)
- Subaortic stenosis (severe)
- Marked cardiac enlargement
- Supraventricular dysrhythmias (uncontrolled or high rate)
- Ventricular ectopic activity (repetitive or frequent)
- Ventricular aneurysm
- Hypertension-untreated or uncontrolled severe systemic or pulmonary
- Hypertrophic cardiomyopathy
- Compensated congestive heart failure
- Subcutaneous/chronic/recurrent infectious diseases (e.g., malaria, others)
- Uncontrolled metabolic disorders (diabetes mellitus, thyrotoxicosis, myxedema)

Figure 9. Pre-exercise Cardiovascular Risk Stratification Chart



* EST = exercise stress test
† Within the past year
‡ Vigorous defined as activities ≥ 6 METS or exercise intense enough to represent a substantial cardiorespiratory challenge. Moderate activities defined as the equivalent of brisk walking (~3-4 MPH)

From:

ACSM's Guidelines for Exercise Testing and Prescription 6th Ed. American College of Sports Medicine. Lippincott,Williams & Wilkins. Philadelphia, PA. 2000. and Balady GJ et al. Recommendations for Cardiovascular Screening, Staffing, and Emergency Policies at Health/Fitness Facilities. AHA/ACSM Scientific Statement. Circulation. 1998;97: 2283-2293.

ACC/AHA 2002 guideline update for exercise testing: summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1997 Exercise Testing Guidelines). Circulation. 2002 Oct 1; 106(14):1883-92..

Conditions can be highly variable. In some cases, the value of exercise testing and/or beginning a physical activity program may exceed risk. In some cases, physical activity may need to be limited. It is always desirable to maximize control of a condition before a patient begins new physical activity. In some cases, direct or indirect medical supervision of an exercise program such as a formal rehabilitation program may be desirable.

Refer to the PAR-medX for a listing of other conditions for which special prescriptive conditions and/or advice exist. Further physical activity guidance for specific conditions can be found in Chapter 6 of this manual.

Figure 11 is a sample template for the medical evaluation when the purpose is for "weight management program clearance" only. Whether or not this template is used, documentation of the medical evaluation should be completed in CPRS as an office visit progress note with explicit physical activity instructions (e.g., no physical activity until further testing is completed, limited physical activity, avoidance of certain activities, etc.)

Issuing an exercise prescription

If you have determined that a patient is safe to begin increasing his level of physical activity (either with or without certain limitations), the next step is to convey this message to both the patient and other staff members. The use of an exercise prescription is encouraged to convey medical clearance, to set activity expectations that will lead to health benefit, and to set limits on activity, if required, due to medical condition. Remember, it is the rare patient who will NOT benefit from exercise; thus, the exercise prescription should focus on building exercise capacity by gradual increases. It should be continually revised as the patient progresses. Guidelines for writing exercise prescriptions and sample basic and advanced exercise prescription forms are provided in Chapter 6.

For health benefits, moderate-intensity activity for at least 30 minutes on 5 or more days a week or vigorous-intensity activity for at least 20 minutes on 3 or more days of the week is recommended. Veterans in the *MOVE!* Program who are sedentary can be given this basic recommendation as their initial exercise prescription and long-term goal. Most will need to start off at a lower level of intensity and frequency and slowly progress over several weeks or months towards this goal. For very sedentary individuals, start with 5-10 minutes per day (or as much as they can do) of light purposeful physical activity, 3 or more times per week. As endurance builds, frequency, duration, and intensity can be increased. Remember to remind patients that it is perfectly acceptable to accumulate 10-minute increments of physical activity over the course of the day through lifestyle activity, as opposed to trying to fit in blocks of programmed physical activity all at one time.

Veterans already meeting the physical activity recommendation for health benefits can be given a prescription for longer duration and/or intensity that incorporates all 3 types of activity (aerobic, strength, flexibility) consistent with their personal weight loss needs. Please refer to Chapter 6 for more information about physical activity as a part of weight management.

3.2.g Facilitating further care

During your medical evaluation, you may identify conditions that may be barriers to health behavior change. Discuss these with your patient to find out how they might impact their weight management plans. Together, decide on further evaluation and or treatment if needed. In many cases, patients may benefit from referral to physical activity specialists (PT, OT, KT, RT),

Figure 10. Adapted PAR-MedX (Physical Activity Readiness Exam)

	Absolute Contraindications	Relative Contraindications
	Permanent restriction or temporary restriction until condition is treated, stable, and/or past acute phase.	*Highly variable. Value of exercise testing and/or program may exceed risk. Activity may be restricted. Desirable to maximize control of condition. Direct or indirect medical supervision of exercise program may be desirable.*
Cardiovascular	•Aortic aneurysm (dissecting) •Aortic stenosis (severe) •Crescendo angina •Decompensated Congestive Heart Failure •Myocardial Infarction (acute) •Myocarditis (active or recent) •Pulmonary or systemic embolism (acute) •Thromobophlebitis •Ventricular tachycardia and other dangerous dysrhythmias (e.g., multi-focal ventricular activity)	•Aortic stenosis (moderate) •Subaortic stenosis (severe) •Marked cardiac enlargement •Supraventricular dysrhythmias (uncontrolled or high rate) •Ventricular ectopic activity (repetitive or frequent) •Ventricular aneurysm •Hypertension-untreated or uncontrolled severe systemic or pulmonary •Hypertrophic cardiomyopathy •Compensated congestive heart failure
Infections	Acute infectious disease (regardless of etiology)	Subcutaneous/chronic/recurrent infectious diseases (e.g., malaria, others)
Metabolic		Uncontrolled metabolic disorders (diabetes mellitus, thyrotoxicosis, myxedema)
Lung		
Musculoskeletal		
CNS		
Blood		
Medications		
Other		

Special Prescriptive Conditions	Advice
Individualized prescriptive advice generally appropriate. Limitations imposed; and/or special exercises prescribed. *May require medical monitoring and/or initial supervision in exercise program.*	
• Aortic (or pulmonary) stenosis • Mild angina pectoris and other manifestations of coronary insufficiency (e.g. post acute-infarct) • Cyanotic heart disease • Shunts (intermittent or fixed) • Conduction disturbances - complete AV block, Left BBB, WPW syndrome • Dysrhythmias (controlled) • Fixed rate pacemakers	Clinical exercise test may be warranted in selected cases, for specific determination of functional capacity and limitations and precautions (if any). Slow progression of exercise to levels based on test performance and individual tolerance Consider individual need for initial conditioning program under medical supervision (indirect or direct)
• Intermittent claudication	Progressive exercise to tolerance
• Hypertension: SBP 160-180; DBP $\geq$ 105	Progressive exercise; care with medications (serum electrolytes; post-exercise syncope)
• Chronic infections • HIV	Variable as to condition
• Renal, hepatic and other metabolic insufficiency	Variable as to status
• Obesity • Single kidney	Dietary moderation, and initial light exercises with slow progression
• Chronic pulmonary disorders	Special relaxation and breathing exercises
• Obstructive lung disease and/or asthma	Breath control during endurance exercises to tolerance; avoid polluted air
• Exercise induced bronchospasm	Avoid hyperventilation during exercise; avoid extremely cold conditions; warm up adequately; utilize appropriate medication
• Low back conditions	Avoid/minimize exercise that precipitates or exasperates (forced extreme flexion; extension, and violent twisting; correct posture)
• Arthritis- acute (infective, rheumatoid, gout)	Treatment of condition, judicious blend or rest, splinting and gentle movement
• Arthritis-subacute	Progressive increase of active exercise therapy
• Arthritis- chronic (osteoarthritis and above conditions)	Maintenance of mobility and strength; non-weight-bearing exercises to minimize joint trauma.
• Orthopedic	Highly variable and individualized
• Hernia	Minimize straining and isometrics; strengthen abdominal muscles
• Osteoporosis or low bone density	Avoid exercise with high risk for fracture such as push-ups, curl-ups, vertical jump and trunk forward flexion; engage in low-impact weight bearing activities and resistance training
• Convulsive disorder not completely controlled by medication	Minimize or avoid exercise in hazardous environments and/or exercising alone (e.g. swimming, mountain climbing, etc.)
• Recent concussion	Thorough examination if history of 2 concussions; review for discontinuation of contact sport if 3 concussions, depending on duration of unconsciousness, retrograde amnesia, persistent headaches, and other objective evidence of cerebral damage
• Anemia - severe (Hgb < 10 gm/dl) • Electrolyte disturbances	Treatment and control preferred, exercise as tolerated
Ganglionic blockers Beta-blockers Anti-arrhythmics Anti-hypertensives Anti-anginals Diuretics Anticonvulsants Digitalis	Note: consider underlying condition. Potential for: exertional syncope, electrolyte imbalance, bradycardia, dysrhythmias, impaired coordination and reaction time, heat intolerance. May alter resting and exercise ECG's and exercise test performance
• Post-exercise syncope	Moderate program
• Heat intolerance	Prolong cool-down with light activities; avoid exercise in extreme heat
• Temporary minor illness	Postpone until recovered

Figure 11. Suggested template for documenting “medical clearance” for weight management programs in CPRS.

Section 1: History		
Diagnosed Conditions:	**Cardiac Risk Factors:**	**Relevant Review of Systems**
☐ Cardiovascular Disease	☐ Smoking	☐ Chest pain/pressure induced by activity or at rest
☐ Pulmonary Disease	☐ Hypertension	☐ Unaccustomed shortness of breath at rest or brought on by mild exertion
☐ Musculoskeletal Disease	☐ High Cholesterol	☐ Dizziness with activity, loss of balance
☐ Peripheral Vascular Disease	☐ Diabetes	☐ Syncope
☐ Metabolic Disease	☐ Family History of Early CAD (Age < 50)	☐ Fast, irregular, or extra heart beats
☐ GI disease		☐ Metabolic symptoms suggesting thyroid or diabetes
☐ Others		☐ Unusual fatigue
☐ Medication Review		☐ Undiagnosed pain, edema, or functional deficits in extremities or joints
Section 2: Physical Exam		
☐ Vital Signs	☐ Pulmonary	☐ Musculoskeletal
☐ HEENT	☐ Cardiovascular	☐ GI and GU
Section 3: Other Relevant Findings		
☐ Laboratory ☐ Radiology ☐ GXT (Stress Test) ☐ Other Diagnostic Testing		
Section 4: Assessment and Plan		
☐ No physical activity permitted ☐ Medically supervised program until further medical clearance ☐ Unrestricted physical activity ☐ Basic Exercise Rx Issue or ☐ Advanced Exercise Rx Issued ☐ Progressive unsupervised activity okay with restrictions as noted below: ☐ Basic Exercise Rx Issued with Restrictions ☐ Advanced Exercise Rx Issued with Restrictions _____ _____ _____	☐ Further Evaluation Required prior to Activity ☐ GXT (Stress Test) ☐ Cardiology Consultation ☐ Physical Therapy Consultation ☐ Other Consultation ☐ No dietary restrictions/precautions ☐ Dietary restrictions precautions noted below _____ _____ _____ ☐ Referral to a registered dietitian for supervision of dietary changes	
☐ Other		

registered dietitians, or behavioral health professionals for further evaluation and/or monitoring during participation in a weight management program.

3.3 Medication adjustment to facilitate weight management

Certain drugs and entire classes of medications have been associated with small to modest amounts of weight gain in research studies. Outside of research studies, experienced practitioners will often hear complaints from patients about Drug X or Y causing weight gain. Avoiding or substituting for medications that cause weight gain, in conjunction with changes in dietary and physical activity behaviors, can often lead to clinically significant degrees of weight loss which were not possible before the medication changes were made.

In research studies, drug-induced weight gain is generally in the range of 1-5 kg. Weight gain more than this amount can rarely be attributed to medication alone. Research studies cannot substitute for a veteran's individual past experience with weight changes when starting or stopping a drug, and this should be considered whenever medication adjustments are made.

3.3.a Risks and benefits of medication adjustments

Risks and benefits of alternative treatments should be discussed with the veteran and relevant specialists (if needed) before any changes are made. Risks of medication adjustment include:

- Destabilize currently controlled comorbid conditions
- Cause new and/or increased side effects from the alternate medications
- Create additional out-of-pocket expenses for the veteran

Benefits of medication adjustment include:

- Prevent future weight gain
- Facilitate weight loss efforts
- Decrease health risks due to overweight/obesity

3.3.b Strategies for medication adjustment

Avoid using medications that cause weight gain by considering non-pharmacologic options when safe, efficacious, and feasible; by using alternate medications that either do not induce weight gain or minimize the degree of weight gain compared to other drugs in the same class; or by lowering dosages of medications which cause weight gain when possible.

Cautions when Adjusting Medications

Past medical history and experience treating the patient should be utilized in making medication adjustment decisions. Patients who are acutely ill should have their conditions medically stabilized before any adjustments to facilitate weight loss are made. Adjustments should be avoided in patients who have previously demonstrated that various manipulations are likely to either be unsuccessful or intolerable. Close follow-up is warranted after medication changes to monitor for deterioration that may be associated with medication changes.

3.3.c Drug classes commonly associated with weight gain

- Anti-psychotics (especially newer, atypical ones)
- Anti-depressants
- Anti-convulsants
- Certain classes of diabetes medications
- Older anti-histamines
- Certain alpha or beta-blockers
- Oral steroid hormones

The next section will discuss each class in further detail.

Anti-psychotics

Drug-associated weight gain with this class of drugs is well characterized. For this class of drugs, weight gain is the norm, rather than the exception. Weight gain due to these drugs is generally higher for patients at lower BMIs compared to patients at higher BMIs. Clozapine (Clozaril®) and Olanzapine (Zyprexa®) cause the most weight gain relative to other atypicals. Aripiprazole (Abilify®) and Ziprasidone (Geodon®) cause the least weight gain relative to other atypicals. Risperidone and quetiapine are 1st line atypical agents per VA-Pharmacy Benefits Management (PBM). Designation as 1st line is based on cost, not difference in efficacy. Please refer to the following documents from the PBM pertaining to the use of atypical anti-psychotics:

http://vaww.pbm.va.gov/guidelines/Atypical%20algorithm%202004.pdf
http://vaww.pbm.va.gov/criteria/Risperidone.pdf
http://vaww.pbm.va.gov/criteria/zipracriteria.pdf
http://vaww.pbm.va.gov/criteria/ZiprasidoneIM.pdf

Conventional anti-psychotics can also induce weight gain. Haloperidol, fluphenazine, loxapine, molindone, and pimozide (non-formulary) are least likely to cause weight gain relative to other agents in this class.

Anti-depressants

With long-term use, most anti-depressants are associated with weight gain. Whether this gain is due to a direct drug effect or due to improvement in depression is not entirely clear. Anti-depressants that cause weight gain:

- *TCA* - amitryptyline, clomipramine (non-formulary), desipramine, doxepin, imipramine, nortriptyline, protryptiline (non-formulary)
- *SSRI* - paroxetine
- *MAOI* - phenelzine, tranylcypromine
- *Other* - mirtazapine, trazodone

Use bupropion when not medically contraindicated for 1st line treatment of depression in overweight/obese individuals. Other good alternatives include: citalopram, fluoxetine, nefazodone, sertraline, venlafaxine, escitalopram (non-formulary), and fluvoxamine (non-formulary). In general, use the lowest effective dose of anti-depressants and consider adjunctive psychotherapy. Finally, consider “off-label” use of topiramate or bupropion in conjunction with other anti-depressants to minimize weight gain. Refer to guidelines developed

by VA National Pharmacy Benefits Management for further guidance on the selection and use of anti-depressants:

The Pharmacological Management of Major Depression in the Primary Care Setting: http://vaww.pbm.va.gov/guidelines/depressionguidelines_1.pdf

SSRI: Initial Selection: http://vaww.pbm.va.gov/guidelines/SSRI%20Algorithm.pdf

Anti-convulsants /anti-manics

The following medications are associated with weight gain: divalproex, gabapentin†, lithium, and valproate. The best alternatives are topiramate* or lamotrigine while good alternatives are carbamazepine, phenytoin, primidone, and tiagabine (non-formulary).

† VA-National Pharmacy Benefits Management has developed criteria for use of gabapentin, and it is available at: http://vaww.pbm.va.gov/criteria/Gabapentin.pdf

*These agents may have criteria for use at the VISN level. Consult your VISN formulary for further information.

Diabetes medications

For overweight/obese patients who do not require insulin and who have no contraindications, metformin (Glucophage®, Riomet®, Fortamet®) is the preferred first line oral agent. Insulin, sulfonylureas, and thiazolidinediones all cause weight gain. Drugs in these classes include:

- Glipizide (Glucotrol®)
- Glyburide (Diabeta®, Micronase®)
- Glimepiride (Amaryl®, non-formulary)
- Rosiglitazone (Avandia®)
- Nateglinide (Starlix®, non-formulary)
- Pioglitazone (Actos® , non-formulary)
- Repaglinide (Prandin®, non-formulary)

If a second oral agent is required, consider an alpha-glucosidase inhibitor, particularly if post-prandial blood glucose is inadequately controlled. Drugs in this class include acarbose (Precose®) and miglitol (Glyset®, non-formulary).

Module G of the Clinical Practice Guideline “Management of Diabetes Mellitus in Primary Care” discusses the pharmacologic treatment of Diabetes.
http://www.oqp.med.va.gov/cpg/dm/dm_base.htm

Anti-histamines

Weight gain associated with anti-histamines is most notable with first generation medications, particularly diphenhydramine (Benadryl®), cyproheptadine, and azatadine (Optimine®, non-formulary).

Many alternatives for long-term anti-histamine therapy exist. Indication for therapy and co-existing comorbidities will help determine the best alternative. Options include:

- Loratidine (Claritin®, Alavert®)
- Fexofenadine (Allegra®, non-formulary)
- Cetirizine (Zyrtec®, non-formulary)
- Nasal steroid inhalers
- Cromolyn nasal inhaler
- Oral decongestants
- Allergen immunotherapy

Cardiovascular drugs

Beta-blockers may have adverse effects on insulin and lipid profiles, but their definitive role in causing weight gain is less clear. Weight gain associated with beta-blockers may be either a direct effect of the drug or as a result of limited physical activity tolerance due to the drug. It is also not entirely clear whether selective beta-blockers have any advantage over non-selective beta blockers with regards to adverse metabolic effects and/or weight gain.

In hypertension, the risk of weight gain due to beta-blockers should be weighed against their well-known long-term morbidity and mortality benefits relative to other anti-hypertensive classes. In chronic heart failure, the risk of weight gain due to beta-blockers should be weighed against the benefits of treatment.

†VA-Pharmacy Benefits Manager recommendations for use of beta blockers in the treatment of chronic heart failure can be found at: http://vaww.pbm.va.gov/criteria/bblockerscriteria.pdf.

The alpha-blocker terazosin (Hytrin®) has also been shown to cause weight gain in limited numbers of studies. Consider alternative medications.

Oral steroid hormones

Steroids are taken for a variety of indications.

For contraception, injectable progesterone (Depo-Provera®) and the progestin-only pill (mini-pill) are most associated with weight gain. Weight changes associated with the combined estrogen/progesterone pill are highly variable among pills and individuals. Patients who have weight gain on one pill can be offered a trial on a pill with a different progestin component. Non-hormonal methods can also be considered (e.g., intrauterine device (IUD), barrier methods: diaphragm or condoms, or permanent surgical sterilization).

Chronic oral steroid use is often required to maintain control of rheumatologic and pulmonary conditions. Providers often may have already titrated to the lowest possible steroid dose. For rheumatologic conditions, NSAIDS and/or other analgesics (acetaminophen, codeine, tramadol) can be considered for steroid dose sparing effect. Consider the higher risk of adverse GI effects from concomitant steroid and NSAID use. For pulmonary conditions, inhaled steroids, long-acting beta agonists, and oral theophylline can be considered for steroid dose sparing effect.

Chapter 4
Facilitating Health Behavior Change

Unlike many medical problems, the management of weight lies mostly in the hands of patients themselves. Clearly, lecturing patients on the need to lose weight is largely ineffective. Research on staff-patient interaction has demonstrated that staff can assist patients in making health behavior changes through effective communication strategies. The *MOVE!* Program heavily utilizes these techniques.

This chapter introduces staff involved with *MOVE!* to simple effective techniques to facilitate health behavior change with patients. Most of the strategies can be applied to any interaction with patients, not just weight management counseling. These techniques are "skills", as opposed to "knowledge", and it may take practice to become effective at using them with patients. This chapter starts with a review of the “Transtheoretical” or “Readiness for Change Model”, then introduces you to motivational counseling techniques and ways to support patients in their self-management, and finally ends with the basics of working with groups of patients to facilitate behavior change.

4.1 Stages of readiness to change

Extensive research about behavior change has led to our understanding that making the decision to change one’s behavior and then actually doing so is a process that advances through predictable stages. This is called the “Transtheoretical” or “Readiness for Change Model”. The stages described in this model are as follows:

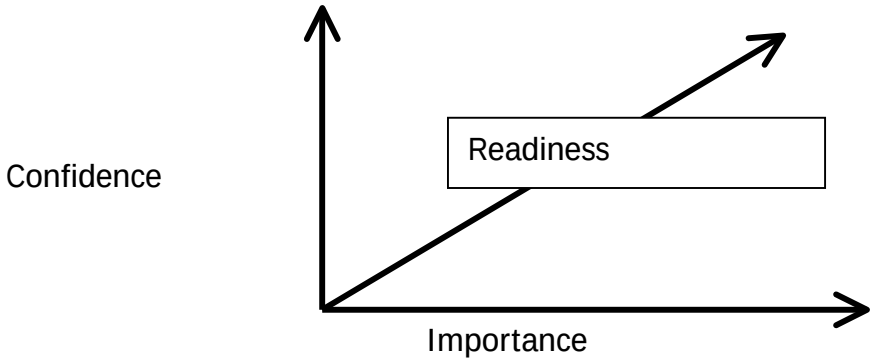
Precontemplation – no intention to change behavior
Contemplation – considering a change in behavior
Preparation – preparatory actions following the decision to change a behavior
Action – currently engaged in behavior change activities
Maintenance – the continuation of a changed behavior beyond the first 6 months

Understanding this model is critical to the ability to carry out effective counseling because failing to work with an individual “where that person is” is usually a losing proposition. There are specific counseling actions that have been shown to be efficacious at various stages in the progression. Although the stages of change are arranged in a logical order, a patient may not progress through them in this fashion. Progress may be extremely slow or very fast. Similarly, an individual may flip back and forth rapidly between stages and/or experience parts of multiple stages at one time.

In the past, if a patient did not stop smoking, lose weight, take medication as prescribed, or otherwise adhere to a medical recommendation, it was considered a failure. A failure, that is, on the part of the patient (or in some cases staff). Because this happened frequently, many medical personnel became jaundiced about the usefulness of health behavior counseling. However, a faulty assumption that the patient wanted to do that which was being advised is more often the reason for failure. Staff may have assumed that the patient was in either the “preparation” or “action” stage when giving health behavior change advice. Individuals who are unwilling to change their health behavior or fail to change in response to medical advice are

more likely to be in the “precontemplation”, or possibly, the “contemplation” stage. Counseling for a patient in the action stage will not be effective with a patient who is in the “precontemplation” stage. Research has confirmed that certain forms of health behavior counseling often result in progress from one stage to another. The actual health behavior change often comes at some later point in time, facilitated by effective counseling in the meantime.

Two factors contribute to a patient’s stage of readiness to change: ***importance*** of the health behavior change to the patient and the patient’s ***confidence*** in his or her ability to be successful making the change. As these 2 factors increase, so does readiness to change.



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Patients who are “not ready” for change may be not ready because the change is not very important to them right now, or they have low confidence in their abilities to effect the change.

4.2 Principles of effective counseling

Interactions between healthcare providers and patients that are “patient-centered”, i.e., driven by the desires and active participation of the patient, have been shown to be effective in promoting adherence. The care provider and the patient become partners in the business of working on the patient’s health problems. The central concept of effective counseling is that of forming a partnership to work with patients to help them accomplish their goals.

Patient-centered counseling is in direct opposition to the former strategies of directing the patient to do something (doctor’s orders!!), or applying confrontation or coercion to pressure them into changing their behavior. The common tendency to “blame the patient” for being unmotivated, uncooperative, obstructionistic, untruthful, etc., is a paternalistic and directive approach and should be avoided. Studies have demonstrated that those types of interactions are relatively ineffective in changing behavior.

Patient-centered counseling strategies are consistent with the fact that most people are only going to actually do what they make up their mind to do. Simply telling people what they must do or demanding that they do certain things directly challenges their need for individual autonomy. The need for personal autonomy is an extremely strong and primitive imperative that develops in early childhood and will win out in most cases. How often have you changed your life as a result of unsolicited advice?

Counseling should be supportive, empathic, nonjudgmental, non-argumentative, non-coercive, and should promote patient autonomy and self-efficacy. It should feel like dancing with the patient, not wrestling. Counseling should assist the patient with a careful self-examination of the issues, the pros and cons of doing something different (such as attempting to lose weight, stop smoking, eat differently, etc), and explore self-generated solutions to identified problems or barriers to progress. It is important to understand and utilize this concept in all interactions with patients.

"Shared Decision Making" is one popular iteration of this partnership idea. With this style of interaction, clinicians provide patients with understandable information about their health and clearly explain the options for screening or treatment that are available. The patient and provider work together on making the relevant decisions with full respect even for patient decisions that are not consistent with the best medical recommendation. The relationship is one of mutual respect and partnership, with the balance of power resting with the patient.

4.3 Effective communication styles

4.3.a Ask open-ended questions

An elementary principle of effective interviewing is that of asking open-ended questions. Asking questions that can be answered "yes" or "no" simply closes the door to further conversation about the topic or opportunities to explore the issue. Asking questions that require a description or an explanation provides the opportunity to explore the content of the response. Questions like the ones below will most likely result in an opportunity to help the patient explore those things further.

"Can you tell me more about that?"

"How is that for you?"

"What are your thoughts about that?"

"What are your concerns about that?"

Here is a sample staff/patient dialog that uses open-ended questioning:

Staff: "We've just talked about the risks of being overweight…what thoughts do you have about that?"

Patient: "Well, I guess I'm not surprised. I mean you are always hearing stuff about how bad it is to be fat on the news and stuff."

Staff: "How might your health be affected by being overweight in the future?"

Patient: "Well, it is probably already hurting my health. I already have to take medicine for high blood pressure. My dad was overweight and he had a stroke, so I guess that is a possibility too."

Staff: "How do you feel about that?"

Patient: "It scares me a lot. I really don't want to end up like him."

Staff: "I agree, I would rather that not happen to you either. Tell me your thoughts about trying to lose some weight?"

Patient: "Well, it's something I know I need to do, but it never seems to be the right time.

Staff: "So, you've considered it?"

Patient: "Yeah, I've thought about it. I have even tried some things before."

Staff: "Tell me more about what you have tried and how that worked?"

4.3.b Listen reflectively

Listening reflectively serves to assure the patient that he or she is being heard which in turn promotes a partnering relationship. This is accomplished by the healthcare provider periodically feeding back to the patient his or her understanding of what the patient has been talking about and asking for clarification. The feedback should reflect one's interpretation of what the patient is trying to express not necessarily the exact words. An example follows:

Patient: "So that's what I have tried for losing weight and I can never get it to work for me. I'm such a bum."

Staff: "You tried lots of things, and you feel like a failure."

Patient: "Yeah, I tried low carb, low fat, joining a gym, nothing worked."

Staff: "You feel like you tried everything, and are discouraged that nothing worked."

Patient: "Yeah, that's right. it's very discouraging."

Staff: "Uh huh."

Patient: "I just think I'm doomed to be fat for the rest of my life."

Staff: "It sounds as if you feel hopeless."

4.3.c Summarize

A second way of reassuring the patient that he or she is being heard is for the healthcare provider to periodically summarize his or her understanding of what has been said so far. This is done in addition to the reflective listening. An example follows:

Staff: "OK, let's see if I have it all right. You tried a low carb diet but found that you just got sick of all that meat and cheese and eggs and greasy stuff. You also tried a low fat diet but found that you were hungry all the time, and that was hard to tolerate. You joined a gym but just couldn't make yourself go there very often, and when you did, felt embarrassed about your weight around all those gym rats. You feel like you have tried everything and nothing has worked, so you are discouraged and feel like a failure, and believe that you are destined to be heavy for the rest of your life. Do I have it correct?

Patient: "That's right, except that I think there must be some answer out there. I mean, other people do it, they keep weight off. How do they do it?"

4.3.d Affirm the positive

This is a subtle technique which serves to reinforce any movement in a positive direction. It works because people tend to keep saying and doing things that result in a reward or other positive outcome. So this technique involves selectively making positive comments, praising, nodding, smiling, and making positive gestures or other positive responses whenever the patient says something that goes in the direction of making the desired change in behavior. Things the patient says in the direction of not making the desired behavior change are not given positive responses by the healthcare provider. Those responses to the patient can be neutral or understanding, but not frankly positive. This technique should be subtle enough that the patient isn't acutely aware that it is being used. In a way, it is using the power of suggestion. A conversation might go like this:

Patient: "I have lost weight before."

Staff: (Smiles) "That's great! So you know some ways that work for you."

Patient: "Yeah, but it's so hard. It's just too hard…"

Staff: "Yes, it can be difficult."

Patient: "I don't know if I can go through it again."

Staff: "What was it like for you after you lost that weight- how did you feel physically, …and emotionally?"

Patient: " I felt great, I looked my best ever, and I felt good about myself for the first time in a long time."

Staff: (Lifts eyebrows and nod head) "Wow!! That must have been a wonderful experience for you!"

Patient: "You know, it was. It was great, and I'd really like to feel that way again."

Staff: (nodding) "Super! That attitude is a great start, and I really like it!"

Patient: "Well, maybe I can get there again."

Staff: "You bet you can! I know you can do it and I'll help you do it if you are interested"

4.3.e Elicit self-motivational statements

This technique is similar to reinforcing statements that favor change. More specifically, this involves encouraging "change talk". The more a person talks about making a change, the more likely they are to follow through, because people tend to believe what they hear themselves saying. The same positive affirmation techniques of smiling, nodding, praise, positive gestures and so on are used whenever a patient engages in positive "change talk". In addition, it involves actively encouraging talk about change by asking questions that stimulate such talk. This is illustrated in the following example:

Patient: "I don't know what to do. I want to stop eating all those big meals and desserts, but I really enjoy them."

Staff: "The fact that you do actually want to stop eating like that is a really good thing. Wanting to do something may be half the battle. There must be some pros and cons to that decision for you. Could we look at those? What do you think would be the advantages to eating differently for you?"

Patient: "Well, let's see. I know I would feel better because I wouldn't feel so stuffed all the time. Uh... I would feel like I was more in control of myself- I guess I would feel sort of proud of myself. I'd probably feel more like getting out and moving instead of just sitting in front of the TV."

Staff: "Those sound like some really good things. Good things like that are what life needs to be about! And the disadvantages?"

Patient: "I would really miss all that good food. I mean, I really enjoy eating. It's a big source of pleasure for me."

Staff: "Hmmm…. What would it take for you to make a decision to change what you eat? Are there even more positive things about eating differently that would come to you if you did?"

Patient: "Yeah, there are. Maybe I could seriously lose some of this weight. If I weren't so big I wouldn't feel like people were always looking at me and being critical. And my health would probably get better.... And I could do more physical things again, like hiking, and tennis."

Staff: "Are all those things valuable to you?"

Patient: "Yes."

Staff: "If you were to decide to eat differently, how would you go about doing it, and how could I help?"

4.4 Techniques for motivational counseling

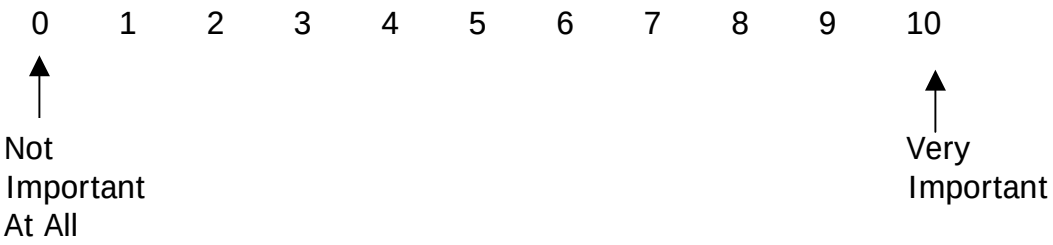
Many patients can be resistant to making significant changes. Motivational counseling techniques are known to be effective in advancing patients from one stage of readiness to the next with respect to health behavior change. They are especially effective for patients who are in the pre-contemplative or contemplative stages of readiness. The eventual result is that a patient makes the critical decision to engage in health behaviors for losing weight. Motivational counseling techniques are based on a specific technique used in substance abuse treatment known as "Motivational Interviewing" which was first described by Rollnick and Miller. Motivational counseling techniques capture the "spirit" of motivational interviewing while remaining feasible for use in primary care settings by providers without special expertise in this area.

4.4 a Exploring and raising importance and confidence

As previously discussed, importance and confidence are 2 factors that affect a patient's readiness to change health behaviors. One useful technique to explore and raise importance and confidence is to ask patients to rate these factors on a scale from 0 to 10.

Exploring and raising importance

> *"How important to you is controlling weight on a scale of 0-10, with 0 being not at all important, and 10 being extremely important?"*



This question might be posed after some brief initial discussion with a patient about his or her weight and the health or other consequences of continuing to be overweight or obese. When the patient responds with a number representing the level of importance to him, the staff might then ask:

> *"Why did you give yourself a "3" rather than a "0"?"*.

This stimulates a discussion of the factors being considered by the patient or at least forces the patient to bring those factors to awareness and consider them. The next question should be:

> *"What would it take to get you from a "3" to a " 6" or a "7", for example?"*

Discussion pertaining to those factors can then follow. This may cause the patient to reconsider how important the probable outcomes, positive and negative, are to him. A dialog might go like this:

> *<u>Staff:</u> "So, to summarize what we have talked about, your weight places you at risk for developing diabetes in the future. Diabetes puts you at much higher risk for heart attacks,*

strokes, kidney problems, vision problems, and problems with wound healing that can lead to amputations. If you develop diabetes, it will involve having to be very careful about what you eat and probably also taking medications and perhaps even insulin shots to control it. You would also have to monitor your blood sugar on most days by pricking your finger. The benefit of losing that weight is reducing your risk of diabetes along with just feeling a lot better, both physically and emotionally. I wonder, how important is losing weight to you right now, on a scale of 0-10, with 0 being not at all important, and 10 being extremely important?"

Patient: "Well, I guess it is about a "4"."

Staff: "Hmmm…What makes it a "4" rather than a "0" or "1"?"

Patient: "Well,…I really don't want to have to take shots or prick my fingers."

Staff: "Well, that's a very good reason. What do you think it would take to make you rate the importance of losing weight a "6" or a "7"?"

Patient: "Well, I'd have to be sure that the changes I need to make aren't going to take a lot of time. My job is very demanding, and I'm involved with a lot of church activities. "

Staff: "It's good that you are considering how some changes that you would need to make would fit into your busy lifestyle."

Patient: "Gosh, the more I think about it, the more I realize that perhaps I haven't considered my health very important. I mean, I really don't want to have any of those problems that you talked about…I saw my dad suffer from a stroke and it wasn't pretty.

Staff: "Uh-huh. So maybe losing weight is actually more important to you than you had first thought?"

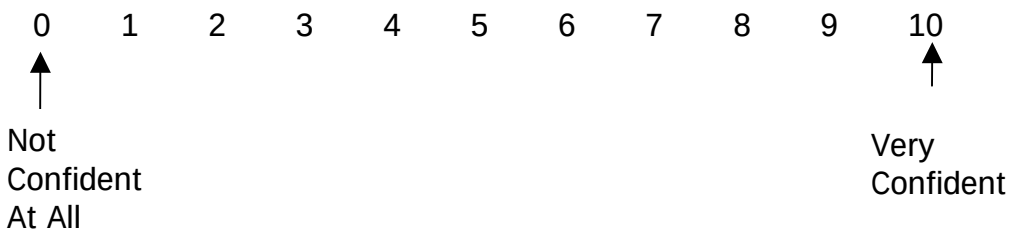
Patient: *"Yeah, I guess so. I'm only 55, and I'm not ready to face diabetes and pricking myself every day."*

In this sample dialog, the healthcare provider first explored the patient's rating of importance. She elicited reasons why the importance was rated intermediately and also elicited barriers the patient may have to consider making weight loss more important. By the end of this discussion, the patient begins to realize that perhaps he needs to make losing weight a more important priority for his life.

Exploring and raising confidence

Exploring a patient's confidence is a similar strategy, and may be carried out in the same fashion. Patients may lack confidence in their ability to make the change in question and asking them to rate their confidence on the 0 to 10 scale may help form the basis for coming up with a realistic plan for making the change. Higher levels of confidence predict the occurrence of actual changes.

"Now, I'd like to understand more about how confident you are that you can make changes in your eating and physical activity to manage your weight. On a scale of 0-10 with 0 meaning not confident at all and 10 meaning very confident, how confident do you feel?"



Patient: "Well, I'm certainly not sure I can do it. I guess it's about a 2."

Staff: "Why did you rate your confidence a "2" rather than a "0"?"

Patient: "Well, it's because I lost about 30 Lbs. a long time ago."

Staff: "Great! So you've done it before! How did you do it? What worked for you?"

Patient: "I just decided in my mind that I was going to do it. I stopped eating sweets 2 or 3 times a day and tried to eat halfway sensibly; I also started taking a walk every night after supper."

Staff: "Those are all great strategies. What would it take for you to rate your confidence a "4" or a "5" instead of a "2"?"

Patient: "Well, I've slipped back to my same old habits, so its no wonder I'm so big. It was really hard to keep those things up. I would need to find a way to keep up with the walking. Also, I'd have to learn more about what foods I should or shouldn't eat. I kind of got bored with "eating sensibly". I mean I know a little bit, but I'm sure there is more to learn."

Staff: "Well, you know that from your past success with losing weight that you "CAN" do it, right?

Patient: "Yeah, I guess so. I actually really enjoyed the walking. It made me very relaxed."

Staff: "That's great! Even making just one or two small changes, like starting back with your walking, can help. I'm confident that you'll be successful if you decide to try. Of course we can also help you find ways to change your diet that you can live with for the long-term. You won't be on your own!"

In this sample dialog, the healthcare provider first explored the patient's rating of confidence. She elicited reasons why the confidence was rated low and also elicited what kept the patient from rating confidence higher. The provider tries to reinforce positive statements made by the patient and reminds them that help is available to them if they are interested.

4.4.b Four motivational counseling techniques

The basic techniques of motivational interviewing include the following:

Express empathy

Patients need to know that you understand their discomfort with the possibility of making a significant change. Significant change almost always generates some uncomfortable anxiety. Imagining oneself in the patient's situation may help to generate empathy for the patient. Expressed empathy often establishes an emotional bond and feeling of closeness, which decreases patients' defensiveness and increases the likelihood of a true partnership. Empathetic statements are ones like:

"That must be really hard for you to bear, I would feel really scared if I just found out I have diabetes, is it like that for you?"

"*This has got to be a pretty big shock to you.*"

"Thinking about making such a big change must feel pretty uncomfortable for you."

The key to making empathetic statements is to use the word *"feel"*, or make direct reference to feelings. The patient must then be given an opportunity to express those emotions. This can be accomplished by simply waiting a few moments for a response as in the following example:

Staff: "The prospect of seriously working on losing all that weight must be pretty scary for you…"

Patient: "Yeah, it is".

Staff: silence for a few moments, looking expectantly at the patient

Patient: "I mean, I have failed every time before, and I'm scared that if I fail again, I'll just feel worse about myself than I already do".

Staff: "I can sure see how you would feel that way. I would too".

Patient: "Uh-huh".

Staff: "If we can work on this together, I'll be here to help you and maybe it won't feel that way this time"

Patient: "That would definitely be better. I would appreciate your support"

Develop discrepancy

People tend to become fixed in their ways in spite of those paths clearly not leading to the most desirable outcomes or to accomplishment of their goals. People tend to ignore the prospect of poor outcomes by continuing to smoke, overeat, remain physically inactive, etc., and to behave in the same old comfortable ways. Motivational counseling techniques attempt to make the patient aware of the discrepancy between his/her current health status and where they would like to be. This often happens naturally when a person who smokes suddenly finds out that a close friend or family member is diagnosed with terminal lung cancer. Then, all of a sudden, the smoker becomes acutely aware that the same thing might happen to them, and they resolve right then and there to quit smoking.

Healthcare providers can help patients to develop a discrepancy during an interview or conversation by asking patients to compare where they are now in terms of their health and/or their personal goals with where they would really like to be. A nonjudgmental and non-coercive discussion then follows regarding the differences and the ways in which their current behavior either will or will not lead to their desired status. This brings the discrepancies to awareness and generates some discomfort for the patient. This discomfort can motivate a decision to make some changes in current behavior patterns or at least motivate the patient to begin thinking about it. Such a conversation might go something like this:

Staff: "Since we are talking about your health, how would you like to feel in the future, say 5 years from now, and how important is that to you?"

Patient: "Well, it's really pretty important to me. I want to feel more energetic, I'd like to be able to do things I used to do like play some tennis, and maybe go on walks. I'd also like to be able to fit into some of my old smaller clothes, and I guess I would just like to feel younger."

Staff: "So, you aren't feeling that way now?"

Patient: "Uh, no, not really".

Staff: "Hmmm… why do you think that is?"

Patient: "I don't feel any of those things these days. I'm bigger than I should be, I don't have much energy, and if I try to do anything like going on walks with my wife, it just kills me! Frankly, I feel old."

Staff: "I wonder, what do you think is getting in the way of your feeling younger and more energetic in 5 years?"

Patient: "I know- I eat too much, I eat junk food, and I'm a couch potato. I used to really enjoy a good game of tennis, taking walks, doing lots of that kind of stuff…"

Staff: "Hmmm….Mr. Jones, this sounds like a real conflict for you. You'd like to have more energy and feel younger, but your current eating and physical activity habits may be getting in the way….what do you think about that? "

Avoid argument and roll with resistance

Most of us resist making significant changes because it is easier to just keep on doing the same old things. Some people do really want to change while other people may actually feel ambivalent about changing. For example, a smoker might think, *"Yes, I do want to stop smoking, but at the same time, I don't want to stop"*. Resistance to anticipated changes in behavior are to be expected, and accepted. Recognize and accept the ambivalence and avoid arguing or attempting to persuade or coerce the patient into making a change until they are ready to do so. This is a patient-centered way to neutralize the energy going into the patient's resistance. Here is an example of how that might be done:

> *Patient: "People keep telling me I need to lose weight. I know I need to, and I want to be at a normal weight again, but…. I've tried it so many times before and always gain it back….it's just so hard! I just don't think I can do that again."*
>
> *Staff: "So you really want to lose the weight, but at the same time you just don't want to go through all that struggle…"*
>
> *Patient: "Yeah, that's how I feel."*
>
> *Staff: "I think that's how I would feel too."*
>
> *Patient: "Really?".*
>
> *Staff: "Yeah, I know it can be hard. If and when you decide that you are ready to start making changes to lose that weight, I want you to know that I will be here to help and support you with that."*

Support patient self-efficacy

Self-efficacy is the degree to which a person believes they are capable of doing something; it's another term for "confidence". We have self-efficacies for all sorts of skills/behaviors like driving a car, changing a tire, fixing a computer problem, being able to cook, and so on. A person has to believe that they might have a chance of succeeding if they are actually going to try something. Research has shown that self-efficacy is made up of many things. Whatever we can do to increase a patient's self-efficacy will be helpful to someone considering changing his or her behavior.

One way to increase self-efficacy is to express confidence in the patient's ability to carry out the new behavior being considered. Another way is to explore with the patient what things they have been able to accomplish in the past, and what worked for them and what didn't. It is also helpful to find out if the patient knows family, friends, or others who have been successful with making such a change. A promise to provide support to the patient while they are going through a difficult change in their habits is always helpful. Here is an example:

> *Patient: "Losing weight is just so hard! I've done it before and failed. I just don't know if I can do it again…"*
>
> *Staff: "Well, you have been on the right track before, and I know that you have accomplished many other difficult things in your life. Although I know that losing weight and keeping it off is really difficult, I personally believe you have the ability to do it successfully."*
>
> *Patient: "I'm not so sure about that."*
>
> *Staff: "Can we talk about what has and what has not worked for you in the past? What did you do before that worked?"*
>
> *Patient: "I started walking every morning and every evening after supper. That worked well."*

Staff: "That sounds like a really good solution. Let's explore some other things you did that worked. If you decide to try again, I will be here to support and encourage you."

4.4.c Exploring the pros and cons of health behavior change

Exploring the pros and cons of changing and not changing a behavior can also be a useful technique to raise importance and/or confidence. The basic format for this technique is to elicit the pros, then elicit the cons, then summarize. Healthcare providers can ask something like:

"What do you see as the potential advantages for you of making that change?" and

"Then what are the potential disadvantages for you of making that change?"

A sample dialog follows:

Staff: Mrs. Smith, I'd like to understand more about how you feel about trying to lose some weight. Is that okay?

Patient: Sure, I guess so.

Staff: As you know losing weight often means changing eating habits and being more physically active. There are usually plusses and minuses to the things we do. What are some of the plusses for your current habits?

Patient: Well, I don't like to worry about what I'm eating and I really like eating out at restaurants...I guess I just love eating. I don't want to give that up.

Staff: What about the other side of things? What are the minuses for your current habits?

Mrs. Smith: I don't want to end up like my mom. She was overweight and ended up dying from a heart attack. Sometimes I'm afraid I'm headed in that same direction.

Staff: So on one hand you get a lot of enjoyment from eating, but you worry that continuing with your current habits may affect your health in the future. Is that about right? (A nice summary of the pros/cons)

4.4.d The patient has the solutions

As mentioned before, people are much more likely to carry through with something they have come up with themselves than a solution prescribed by someone else. The motivational counseling task is to assist the patient with generating workable and acceptable solutions to his or her behavior change problems rather than the staff member having all the answers or prescribing the solutions. This is accomplished by simply asking the patient to think about or brainstorm how they might solve a problem or overcome a particular barrier to changing their behavior. The staff member can then ask the patient to go over the pros and cons of each possible solution until something acceptable to the patient becomes apparent. Should the patient ask for ideas, it would be fine for the staff member to present what he or she or others have done or might do in that situation. However, the patient's ideas need to be thoroughly explored first. Here is an example of how one might begin this process:

Patient: "I'm doing OK with what I am eating, but I'm having trouble getting started with taking a walk every day. I just can't seem to get myself up off the couch after supper. Some of my favorite TV Shows are on at this time."

Staff: "What have you tried to motivate yourself to start?"

Patient: "Well, nothing really."

Staff: "Could we explore some possible solutions?"

Patient: "Yeah. What do you think I could do?"

Staff: "First, let me ask you to think for a minute. What might possibly help you? What can you think of?"

Patient: "I suppose I might change what time I walk so that I can still watch my TV shows. Or maybe I can tape the shows and watch them at another time."

Staff: "Those seem like really good ideas. What do you think the pros and cons of doing each of those might be?"

4.5 Stage specific counseling

In general, motivational counseling techniques can be applied to patients in all various stages of change; however, the content of counseling messages should be targeted to the patient's stage of change in order for the counseling to be most effective. The following section describes how to target counseling to specific stages of change.

4.5.a Precontemplation

The goal of counseling in the pre-contemplation stage is to advise and encourage contemplation. Barriers to moving to contemplation often include denial, lack of awareness of risks, lack of importance, low confidence, and defensiveness. In attempting to help the patient, relevant information is often provided. This allows the patient to feel fully informed prior to making a decision. However, the provision of information must be done in a nonjudgmental and non-coercive manner. Doing otherwise gives the patient something to resist (even unconsciously), and resistance is indeed then likely to occur. As discussed before, people tend to only do what they themselves make up their minds to do. We just need to help them come to that decision for themselves. When the patient appears ready to hear it, information should be provided about the consequences of making a change or not doing so.

Useful techniques for this stage of readiness include:

- Expressing empathy
- Developing discrepancy
- Rolling with resistance and avoiding argument
- Examining the pros and cons of change through open-ended and nonjudgmental questions
- Listening reflectively and summarizing
- Exploring importance and confidence
- Providing information about options, if desired
- Providing nonjudgmental information about the relationship between the patient's health status and their health habits
- Expressing willingness to help if and when the patient feels ready to make a change
- Acknowledging the patient's decision about change, regardless of whether it is a positive one or negative one

Counseling in this stage is likely to have the greatest impact if the information is directly relevant to the patient's health status or situation. For example, one might say:

"Mr. Brown, I do have some concerns about your health and your well-being in the future. I'd like to show you here on the computer screen so you can see for yourself. Your weight has been gradually increasing over the past couple of years. This could lead to developing diabetes and also increases your chance of things like heart attacks and strokes, especially since we are

already treating your for high blood pressure. The good news is that there are things you can do to lose some weight. We can talk about those things if you are interested, and I'll promise to help you along the way if you decide to make some changes. If you decide not to, I'll still do what I can to help you."

4.5.b Contemplation

Patients in the contemplation stage are often ambivalent about making a change. The goal of counseling patients in the contemplation stage is to explore this ambivalence and help shift them towards the decision to make a change in their behaviors. Barriers to moving on to preparation include the following: low confidence, procrastination, low social and/or environmental support, and competing demands. Many of the same techniques that are useful for patients in the pre-contemplation stage can be applied to patients in contemplation:

- Expressing empathy
- Developing discrepancy
- Acknowledging ambivalence
- Examining the pros and cons of change through open-ended and nonjudgmental questions
- Listening reflectively and summarizing
- Exploring importance and confidence
- Providing information about options, if desired
- Affirming positive statements
- Eliciting and reinforcing "change talk"
- Expressing willingness to help if and when the patient feels ready to make a change
- Reinforcing the partnership between patient and staff and willingness to help

4.5.c Preparation

The Preparation stage requires a shift in focus. The goals of counseling in this stage are to strengthen commitment and help patients plan specific actions. Patients who are in the preparation stage may still have barriers and these include: low confidence and being unsure about the specifics of change. Strategies to use with patients in the preparation stage include:

- Openly discussing options for exactly how to accomplish the desired change
- Providing assistance with strategies selected. For example, providing food and/or physical activity logs for patients to use for self-monitoring their behaviors.
- Continuing to reinforce the decision by reviewing the pros and cons
- Reviewing importance and confidence when appropriate
- Expressing confidence in the patient and affirming positive statements
- Eliciting and reinforcing "change talk"
- Reinforcing the partnership between patient and staff

4.5.d Action

The Action stage also requires a slightly different shift in strategy. The goals of counseling in this stage are to praise and reinforce the behavior change, plan for contingencies, and offer continued assistance with new or ongoing barriers. Barriers may still exist for patients in the action stage and patients remain at risk for relapse. Strategies useful for patients in the action stage include:

- Monitoring the new behavior using verbal reports or patient records of their activity, diet, weight loss, etc.

- Providing frequent reinforcement of the new behavior through on-going follow-up either in person or on the phone.
- Providing ongoing assistance with barriers

4.5.e Maintenance

The Maintenance stage is frequently overlooked when it appears that the patient has continued the new behavior patterns reliably. Healthcare providers may feel that the patient is doing fine and doesn't need any further assistance. However, without some ongoing support and reinforcement, relapse frequently occurs. The goals of counseling patients in the maintenance stage are very similar to counseling those in the action stage:

- Monitoring the behavior by asking for a verbal report from the patient
- Providing reinforcement whenever an opportunity presents itself
- Offering assistance with any barriers that arise

4.6 Advanced behavioral health issues with the overweight

The techniques discussed in the previous sections will work well with the majority of *MOVE!* patients. However, individuals who present more complicated psychological or psychiatric issues should be referred to a behavioral health professional. This section will discuss some of the unique behavioral health issues in the overweight and obese population.

Individuals who are overweight, and particularly those who are obese, may suffer from an emotional burden that is at least partly attributable to their weight. That said, it should be noted that there is no evidence of a greater prevalence of psychiatric disorders among the obese. Care must be taken to avoid making overweight or obese patients feel like they are a psychiatric case. However, emotional and other psychological factors may play a role in their weight status, and should be addressed in order to facilitate their progress in weight control.

4.6.a Food and pleasure

One psychological factor of importance is that some overweight or obese individuals have become conditioned such that their main source of pleasure is food. Limiting the intake of food becomes extremely threatening in that case, and is likely to interfere with their efforts to control their weight. Among the other usual interventions, treatment should focus upon the development and recognition of other sources of pleasure. The *MOVE!* Program includes handouts to address this issue, but particular attention must be paid to helping the patient develop a repertoire of alternative pleasures. This will take encouragement, time and practice.

People naturally harbor many very primitive associations with food, such as safety, comfort, being loved, expressing love, and so on. These associations may be exaggerated in individuals for whom eating in abundance is a major part of their life. It may be helpful to assist patients with exploring their relationship with food, and developing counteractive thought processes to at least partially neutralize some of those nonadaptive associations. The usual cognitive therapy strategies of helping the patient identify those associations and practice counteractive thoughts and actions will be helpful in this regard.

Our society reinforces the association between social contact and eating. This represents an additional barrier, because socializing is also a source of pleasure that probably should be

maintained. Cognitive techniques may be applied to this as well, with thoughts such as "Parties are about people, not food." Practices such as meeting others for coffee rather than a meal, or taking a walk, or going to a tennis match or golf events could assist patients in breaking some of those associations.

4.6.b Excess stress

Excessive stress is a common experience in our fast-paced and competitive society, and can often lead to overeating, eating too rapidly, or an inability to take time for physical activity. The body's stress response may even promote the storage of fat tissue. In any case, stress management training can be helpful in gaining better control over weight management behaviors. *MOVE!* has some patient handouts that address this.

4.6.c Poor impulse control

Another psychological factor is that of poor impulse control, particularly when it comes to eating. There are numerous ways to assist patients with developing better self control, including point of decision prompts, planning ahead, eating some healthy snacks prior to parties or other social events involving food, assertiveness training, cognitive skills, and so on. There are handouts addressing some of these skills available in *MOVE!*

4.6.d Emotional scarring

Obese individuals have typically been subjected to ridicule, teasing, embarrassment, employment and social discrimination, difficulty finding clothing that fits, and other demeaning experiences. These experiences doubtless leave some emotional scars. Some people may react by becoming emotionally hardened. Others might feel basically angry with the world, or be withdrawn. Low self esteem and self confidence can be present in some individuals. Feelings of hopelessness, loneliness, or depression may also be seen. Still others may exhibit inappropriate compensatory behavior, such as being excessively controlling of others, aggressive personality patterns, or becoming a "workaholic". Interpersonal relationships are likely to suffer because of these issues. The obese person often turns to eating to "feed their feelings", and the process becomes a vicious circle. There are no easy answers for these problems. However, talking frankly with the patient about these experiences and the feelings associated with them is cathartic and often promotes improvement without further intervention. Others may benefit from brief psychotherapy, or medications in certain cases. Referral to a mental health professional is appropriate in these circumstances.

4.6.e History of sexual abuse

Lastly, a history of sexual abuse is not uncommon within the general population, and is, therefore, not uncommon within the overweight or obese population. A history of sexual abuse has been associated with a variety of later maladaptive behavior patterns. Although such a history is unlikely to come up in patient-staff interactions related to weight control, when it does, it should be handled with sensitivity and not be discounted. An offer to refer the patient to a mental health professional should be made.

4.7 Self-management support

The core of any successful weight management program is to give an interested patient effective tools to manage his or her own weight and reduce the risk for weight-related illness. This is referred to as self-management support. In the *MOVE!* Program, self-management support (Level 1) is the foundation for all other *MOVE!* levels of care. Self-management support empowers and prepares veterans to manage their health and weight. The key features of self-management support are:

- Emphasis on the patient's central role in managing his or her own health
- Use of strategies that include assessment, goal-setting, action planning, problem-solving, and follow-up
- Connecting patients with internal and community resources to provide ongoing self-management support

This section will describe components within *MOVE!* designed to support self-management.

4.7.a *MOVE!23* Patient Report

As previously discussed, the *MOVE!23* Patient Questionnaire asks veterans about their weight history, behavioral characteristics relating to weight management, current diet and physical activity behaviors along with potential barriers to change.

After the patient completes the *MOVE!23*, staff can print a copy of the patient report and review it with them. The patient report summarizes the patient's strengths and barriers with respect to weight management and provides initial advice and information to get a patient started with weight control. The report also points the patient to specific handouts based on his or her responses in order to better tailor weight management advice. Remember to use the counseling techniques described earlier in this module while discussing this report with the patient.

4.7.b Goal setting

Unless we have clear goals, it is hard to change anything. Assistance with goal-setting is another technique that supports patient self-management. After identifying the patient's strengths and weaknesses via the *MOVE!23* report, help the patient with forming between 1 and 3 short-term behavioral, nutrition, or physical activity goal. The goals need to be simple, achievable and specified for a short-time period, from 1 day to 1 or 2 weeks.

In general, goals set should be: **SMART**

SPECIFIC: "I will take a 30 minute walk after dinner each night for the next week."
As opposed to this goal, which is too general: "I will be more physically active."

MEASURABLE: "I will eat one more fruit or vegetable each day this week". As opposed to this goal, which is not measurable: "I will think about eating more fruits and vegetables."

ATTAINABLE : "I will use the stairs instead of the elevator whenever I'm going up 2 stories or less." As opposed to this goal, which may not be attainable: "I will always use the stairs instead of the elevator, no matter how many stories."

RELEVANT: “I will drink diet instead of regular whenever I drink soda.” As opposed to this goal, which may be important, but is not relevant to one's personal weight loss efforts: "I will take my medication for blood pressure every day."

TIME-BASED: “I will find out more information about local park trails for walking within 7 days.” As opposed to this goal, which is not time-based: “I will find out more information about local park trails for walking.”

4.7.c Patient handouts

Information provided on a handout to patients alone is rarely effective at promoting health behavior change. Rather the handouts can be used to reinforce discussions with the patient, answer additional questions that the patient may not have raised, and provide examples to the patient. The patient handouts developed for *MOVE!* are written at a 6th-8th grade level and can serve as a stand-alone document for patients to take home and read, or they may also serve as a tool to guide your interaction with patients either over the phone, in person, or during a group session. It is often helpful to use handouts to assist with goal-setting.

MOVE! handouts are categorized as follows:

Standard – 10 handouts which describe the basics of effective weight control along with nutrition and physical activity logs

Behavioral – 34 handouts that focus on behavioral aspects of weight management including coping skills, impulse control, psychiatric conditions which may be barriers, and attitude among others

Nutrition – 31 handouts that focus on nutritional aspects of weight management including guidelines for healthy eating, reading food labels, and problem eating behaviors among others

Physical Activity – 32 handouts that focus on safety and injury prevention, aerobic, strength, and flexibility activity advice, and dealing with barriers to becoming more physically active among others

After the patient completes the *MOVE!23* and the patient report is reviewed, patients can be given the standard 10 *MOVE!* handouts which includes a nutrition and physical activity log. The *MOVE!23* will also indicate additional handouts that are relevant for the patient based on their responses, but you probably don't want to give all of the additional handouts at once as this may overwhelm veterans. Choose additional handouts based on the patient’s initial goals. The *MOVE!* Program includes many handouts that you may choose to give the patient at some later stage even if they have not been indicated by the *MOVE!23* Report.

4.7.d Arranging follow-up

A key element of supporting self-management is to maintain regular follow-up with the patient. It’s very important that every contact with a *MOVE!* patient end with specific arrangements for the next follow-up contact.

Follow-up contact is recommended within one week after initial enrollment and every 2 to 4 weeks thereafter. Follow-up intervals can be adjusted as clinically indicated. The purpose of

these follow-up contacts is to monitor progress and provide support and assistance. Inquire about progress with goals and offer praise for even small accomplishments. Ask about barriers using techniques discussed earlier, and solicit the veteran's ideas about possible solutions.

Follow-up with veterans in Level 1 can usually be accomplished by telephone. Level 1 can also be done in person with a primary care nurse or medical provider visit.

Telephone follow-up

Every clinic will develop a mechanism for telephone follow-up that works best for them. Scheduling follow-up phone calls with veterans is most efficient. Set up telephone clinics where a veteran selects a specific time/date to speak with staff. Staff should have dedicated time for these calls. Make sure to ask veterans with call-screening devices to accept calls from your clinic phone number. Spread the work of telephone follow-up among staff. This reduces individual burden, but good documentation is essential to avoid duplicating calls and to ensure all follow-up is completed. When a specific dedicated time is assigned for phone follow-up (e.g., Tuesday mornings), be aware that this time may not always be convenient for some veterans so be flexible in allowing alternate arrangements.

Telephone communication differs from face-to-face communication in that it relies exclusively on verbal techniques. When staff counsel veterans over the phone, it's very important that they use a quiet area where they won't be distracted or disturbed by others and that they use a clear voice.

Establish rapport at the beginning of the call by clearly identifying yourself and the purpose of your call.

> *"Hi Mrs. Smith, this is Caroline, one of the nurses from the MOVE! program at the Durham VA. I'm calling to see how you are doing with your weight management goals that you discussed with Dr. Hardison last week. Is this a good time for you to talk?"*

When you are counseling over the phone, substitute verbal acknowledgments in places where you would normally use a non-verbal gesture like a smile or nod. Without non-verbal clues, it may be more difficult for you to gauge a veteran's response. Remember to use open-ended questions, listen reflectively, and summarize. Provide ample opportunity for the veteran to ask questions.

In general, most phone calls can be brief, no more than 10 minutes. Here is a suggested format for follow-up phone calls:

- Review veteran's medical record to make sure you are up to date on current goals and any recent weight-related consultations.
- Call patient (or they call you).
- Re-establish rapport.
- Assess progress on previously established goals.
- Re-evaluate importance, confidence, stage of readiness to change, and goals.
- Provide positive reinforcement.
- Discuss barriers.
- Provide information as needed.
- Agree on new (or same) goals.
- Arrange next follow-up contact.

To keep phone calls brief, it is important to set boundaries with patients. At the time of enrollment, it may be helpful to explain to patients that *MOVE!* phone calls are time dedicated for them to discuss their weight management. Make sure they understand that since time is limited, you will not be able to address other things such as following up lab results, medications refills, or other medical conditions. Encourage veterans to use existing primary care mechanisms to deal with other issues.

4.7.e Handling setbacks and long-term follow-up

With most health behavior changes, setbacks are common. Importance and/or confidence may decrease over time, and goals become harder to achieve. An office visit to reconnect face-to-face or an extended phone call may be useful. Chapter 10 discusses weight loss maintenance strategies in more detail. Here are some general tips:

- Express empathy and acknowledge the difficulty in maintaining weight management behaviors.
- Reassure veterans that setbacks are common and can be used as learning experiences. Identifying barriers early in the health behavior change process can be useful for long-term maintenance.
- Ask the veteran to rate importance and confidence for change and compare to prior ratings; explore why these factors may have changed.
- Ask the veteran to identify barriers to reaching goals and ask him to offer potential solutions.
- Assist the veteran with redefining achievable and maintainable goals.

Since weight management is a skill needed for life, office systems to ensure long-term follow-up and support of veterans are important. It may be a good idea to set up 3- or 6-month office visits as a safety net. This may allow staff to reconnect with veterans who might lose interest and stop calling or who fall through the cracks of an imperfect healthcare system.

4.7.f Connect veterans with VA and community resources

The last element of self-management support is to connect veterans with internal (VA) and community resources to provide ongoing self-management support. Patient materials have been designed or recommended for use in the *MOVE!* Program: pedometers, nutrition and physical activity logs, and patient handouts are all examples. Direct patients to existing programs and resources when available. The *MOVE!* website lists some additional resources for patients. Everyone on the *MOVE!* healthcare team should become familiar with community weight-management resources available for veterans. These include local parks and recreation facilities, local health department or cooperative extension services, and community and/or church organizations. Take time to learn about these external resources.

4.8 Group session facilitation skills

Modules that healthcare staff can use to structure *MOVE!* Group Sessions are available on the *MOVE!* website. A variety of modules that cover nutrition, physical activity, and behavior are available. Table 2 is a list of available modules. The *MOVE!* group modules are designed to facilitate guided discussions, but need not be rigidly adhered to. In general, sessions should last between 60-120 minutes and should be roughly structured with time for individual weigh-in, time for a topical discussion, and time for problem solving and group support. Groups are like individuals; they often will present with some unique concerns. Be prepared to "go with the flow" and address the unique concerns of the group rather than sticking too heavily to a fixed format.

Please refer to the ***MOVE!*** **Quick Start Manual** for more information on specific logistics of running group sessions.

Table 2. Group session modules available on the *MOVE!* Website

Behavior

GB01 - Coping With Stress Leader
GB02 - Decisional Balance Leader
GB03 - Great American Conspiracy Leader
GB04 - Guiding Thoughts Leader
GB05 - Impulse Control Leader
GB06 - Irrational Ideas Leader
GB07 - Motivation Leader
GB08 - Overcoming Self Defeating Thoughts Leader
GB09 - Plan Ahead Leader
GB10 - Pleasure Leader
GB11 - Self Control Leader
GB12 - Self Esteem Leader
GB13 - Wellness Leader
GB14 - What Is Mental Health Leader

Nutrition

GN01 - Cook It Light And Quick Leader
GN02 - Dining Out Leader
GN03 - Fast Foods Leader
GN04 - Food Pyramid Leader
GN05 - Be A Frequent Feeder Leader
GN06 - How To Eat Better Leader
GN07 - Obesity And Your Health Leader
GN08 - Reading Food Labels Leader
GN09 - Snacks And Sweets Leader
GN10 - Water Leader
GN11 - Weight Management Attitude Leader
GN12 - Weight Management Exercise Leader
GN13 - Weight Management Lifestyle Changes Leader
GN14 - Weight Management Nutrition Knowledge Leader

Physical Activity

GP01 - Active Feet Leader
GP02 - Barriers To Physical Activity Leader
GP03 - Benefits Of Regular Exercise Leader
GP04 - Exercise On A Budget Leader
GP05 - F I T T Leader
GP06 - How To Take Your Pulse Leader
GP07 - If You Sit Or Stand Leader
GP08 - Lack Of Time For Exercise Leader
GP09 - Prevention Tips For Sore Muscles Or Cramps Leader

Facilitating a group session is not the same as "teaching a class". It may be helpful, at least initially, for a behavioral health professional with experience facilitating group sessions to co-lead all *MOVE!* Group Sessions. This will help other *MOVE!* staff gain comfort and experience facilitating sessions.

The ideal group size is 12-15. Rarely do all enrolled participants attend every session; thus, consider accepting/enrolling approximately 18-20 participants to ensure a group size of 12-15 for each session. Have the group establish some ground rules at the onset discussing how everyone should get to participate, how confidentiality should be handled, and how everyone needs to be treated with respect. Remember that *MOVE!* Group Sessions are not meant to be a therapy group, so getting into personal issues that are not weight-management related should be avoided unless it seems appropriate at the moment.

Make sure that the session is not a lecture; encourage individuals to talk right away. The area of weight management is so full of information that it is important not to allow the group to become overly didactic. Make sure that everyone gets a chance to speak – one way is to suggest a group homework exercise and then have individuals report on success with this homework during the next group session. For veterans who are reluctant to participate, the facilitator can ask them their opinion on something…"Mr. Kennedy, do you have some thoughts about that?" This is also a way to redirect the conversation when certain patients are trying to dominate. The facilitator can help patients participate in the group by strategically shifting eye contact from the person speaking to other group members so that participants learn to address

the entire group rather than just the facilitator. Seating can be arranged as close to a circle as the room permits to facilitate this process.

Facilitate the process of veterans helping each other; this can be really powerful. Rather than responding directly to a question about a problem say:

"Who has had problems with that and figured out a way to manage the problem?"

It is often much more credible to get guidance from peers.

Be prepared to intervene if one or two members try to do all the talking ... you can use gentle tactful comments like:

"Well Mr. Jones, we can see where you stand on this, who else is dealing with a similar issue?"

or,

"Let's hear from some others on how they are doing with that."

If there is a problem patient, the facilitator may say:

"Let's talk about that individually after the session."

In every group, there is almost always a model patient who "gets it" and can be called on to prime the group if the group is getting stuck. Model for the group how to praise folks who have had success (initiating clapping) and also cuing group members to assist those who are getting stuck.

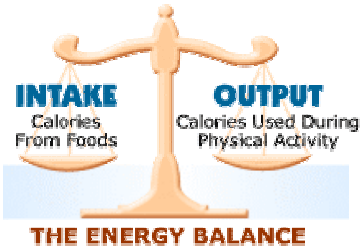
Chapter 5
Facilitating Healthy Nutrition

This chapter provides both basic and advanced nutrition information that staff can use when working with patients to set nutrition goals and problem solve barriers to healthy dietary changes.

5.1 Energy balance

Body weight is determined by the balance between energy intake and energy expenditure (see Figure 12). When energy intake is less than expenditure, weight loss will occur. When energy intake exceeds expenditure, weight gain ensues. When intake is balanced with expenditure, weight maintenance occurs. Overweight/obesity is usually the result of a net energy surplus over a long period of time (months or years).

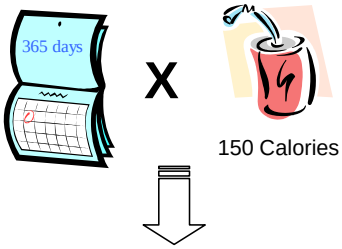
Figure 12. The energy balance



When we consume more energy (calories) than we spend, our body stores the extra as body fat. One pound represents an approximate surplus of 3,500 Calories, no matter whether the extra calories came from fat, protein, carbohydrate, or alcohol. An example of an unnecessary calorie surplus is provided in Figure 13.

Figure 13. An example of how unnecessary calories contribute to extra weight.

Drinking a can of cola every day for a year:



54,750 Calories

Since 1 lb equals 3500 Calories

54,750 / 3500 =

15.6 lbs of unnecessary weight per year

5.2 Definition of nutrition terms

5.2.a Adipose tissue

Adipose tissue is the scientific term for body fat. Adipose tissue increases either by increasing the size of cells (hypertrophy) or the number of cells (hyperplasia) or both. Hyperplasia can occur throughout life, but its occurrence is not random. It is influenced by the capacity of existing cells. Once the maximal size/capacity of fat cells is reached; hyperplasia can occur. With weight or fat loss, the number of fat cells is not reduced, only their size. Hence, the premise that consistent weight cycling (yo-yo) makes weight loss and maintenance even more difficult.

5.2.b Food

Food (including beverages) is defined here as plant or animal products that contain nutrients. We can group foods into different categories based on the nutrients they provide:

- Grains
- Fruits
- Vegetables
- Legumes (beans), seeds and nuts
- Meat, poultry, fish,
- Eggs
- Dairy
- Fats, oils
- Refined sugars

5.2.c Diet

While most people think of the word “diet” as something one does to lose weight, diet technically refers to a selection of foods. We choose our diet based on personal preference, family tradition, cultural background, and social influences.

5.2.d Nutrients

Nutrients are defined as substances that one consumes to function, grow, and maintain health. Nutrients are divided into macronutrients (carbohydrate, protein and fat) and micronutrients (vitamins, minerals). The basic required nutrients are: water, carbohydrate, protein, fat, dietary fiber, vitamins, and minerals.

5.2.e Energy from food

A Calorie is the measurement of energy generated from nutrients and utilized by the body. What is commonly referred to as a Calorie (with a capital C) is actually a kilocalorie and is often abbreviated as “kcal”. Three nutrients (carbohydrate, protein, and fat) along with alcohol provide energy in the form of Calories. Table 3 lists the number of Calories per gram of these nutrients.

Table 3. Calorie density

Energy source	Calories(kcal) per gram
Carbohydrate	4
Protein	4
Fat	9
Alcohol	7

5.2.f Carbohydrates

Carbohydrates are usually the body's main source of energy and the preferred fuel for the brain. Starch (complex carbohydrate) and sugar are the major types of carbohydrates. Complex carbohydrate is made up of linkages of single or simple carbohydrate/sugars. Grains and vegetables are sources of starch. Natural sugars are found in fruits, vegetables and dairy. Examples of sources with added sugars are soft drinks, candy, and desserts.

Fiber, another type of carbohydrate, aids digestion (promotes regularity, prevents constipation), promotes health, and offers protection from some diseases. High-fiber diets aid blood glucose control and reduce cholesterol levels and risks for some cancers. Fiber is not digested and absorbed; thus, it does not contribute to caloric intake. Due to its properties, fiber can aid satiety and weight management. Fiber is distinguished as soluble (dissolves in water) and insoluble (does not dissolve in water). Some foods containing high levels of soluble fiber are dried beans, oats, barley, and some fruits, notably apples and citrus, and vegetables, such as potatoes. Foods high in insoluble fiber are wheat bran, whole grains, cereals, seeds, and the skins of many fruits and vegetables. Most plant foods contain some of each kind. Soluble fiber helps to reduce blood cholesterol levels while insoluble fiber adds bulk to stool which prevents/alleviates constipation and lowers risk for certain cancers.

5.2.g Protein

Protein consists of specific sequences of linked amino acids. Amino acids are involved with the building, repair, and maintenance of all body tissues. Our bodies are able to synthesize what are called non-essential amino acids. Others cannot be synthesized and must be ingested, thus, they are called essential. Protein can be used as energy, especially if energy is not adequately available from other sources, i.e., carbohydrate and fat.

Protein from animal sources, such as meat, poultry, fish, eggs, milk, cheese, and yogurt, provide all 9 essential amino acids and are thus called complete proteins. Protein from plants, legumes, grains, nuts, seed, and vegetables tend to be deficient in one or more of the essential amino acids; hence, they are known as incomplete proteins. Vegetarians must pay particular attention to food selection to ensure inclusion of a variety of plant sources to ensure adequate intake of essential amino acids.

5.2.h Fat

Fats serve many vital roles in the body just some of which include: cell structure; nutrient transport; growth; insulation; and protection of organs, bones, nerves, etc. However, fats can be a significant source of energy, and if consumed in excess will be stored in adipose tissue. The two technical terms for fats found in the body and in food are cholesterol and triglycerides. Cholesterol is essential for cell-building and our bodies can produce all the cholesterol that we need. Dietary cholesterol is found only in foods of animal origin (e.g., dairy products, meat, eggs). Triglycerides are made up of a backbone called glycerol and 3 fatty acid chains. Fatty acids are categorized by their structure: saturated, monounsaturated, polyunsaturated, and trans fatty acids. Sources of fat in the diet include butter, margarine, vegetable oil, whole and reduced fat milk and milk products, visible fat on meat and poultry, visible and invisible fat on fish and shellfish, some plant products such as seeds and nuts, and baked goods.

Saturated fatty acids are found chiefly in animal sources such as meat and poultry, whole or reduced-fat milk, and butter. Some vegetable oils like coconut, palm kernel oil, and palm oil are also a source of saturated fat. Saturated fats are usually solid at room temperature.

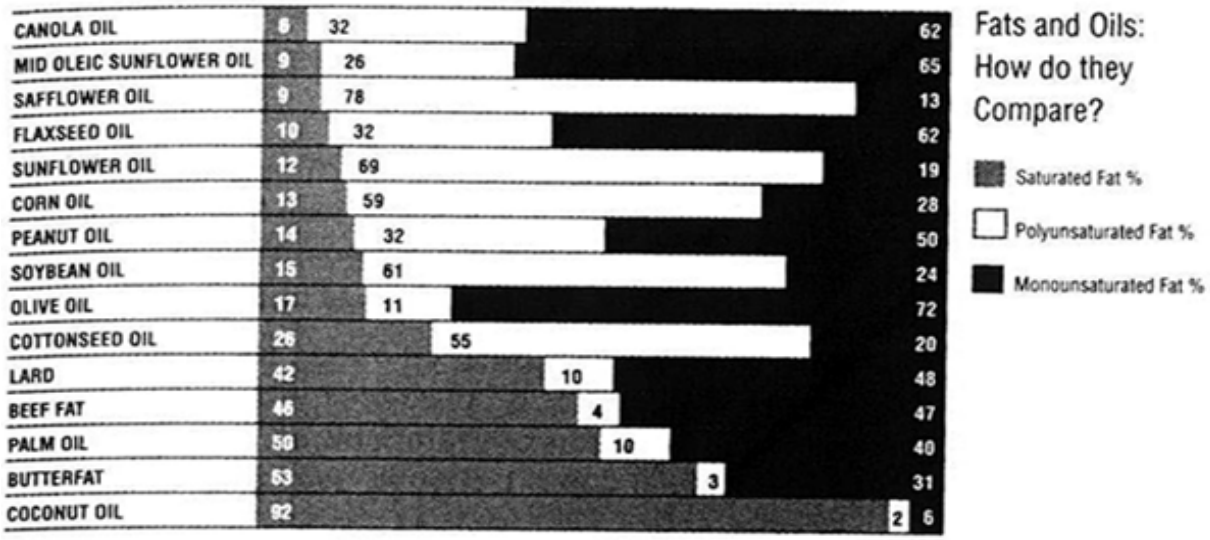
Trans fatty acids are formed when vegetable oils are processed into solid fats like margarine or shortening through a process called hydrogenation. Sources of trans fats in the diet include crackers, candies, cookies, snack foods, fried foods, baked goods, and other processed foods made with “partially hydrogenated vegetable oil” or “vegetable shortening.” The processing or hydrogenation increases the shelf life and flavor stability of foods containing these fats. Trans fatty acids also occur naturally in some animal products such as dairy products.

Higher intakes of saturated and trans fats and dietary cholesterol raise low density lipoprotein (LDL or "bad") cholesterol in the blood. An elevated LDL cholesterol increases the risk of developing coronary heart disease (CHD). Like saturated fat, trans fat also raises the LDL cholesterol in the blood. But unlike saturated fat, trans fat lowers high density lipoprotein (HDL or "good") cholesterol in the blood.

Monounsaturated and polyunsaturated fats are the preferred types of fats for dietary intake. In general, they are liquid or soft at room temperature. Monounsaturated fatty acids are found mainly in vegetable oils such as canola, olive, nut and peanut oils. These oils are liquid at room temperature. Olives, avocados, peanuts and nuts are also sources of monounsaturated fats. Polyunsaturated fatty acids (omega 6 fatty acids) are found mainly in vegetable oils such as safflower, sunflower, corn, flaxseed, and canola oils. Polyunsaturated fats are also the main fats found in seafood (omega 3 fatty acids). Specific polyunsaturated fatty acids, such as linoleic acid and alpha-linolenic acid, are called essential fatty acids. They are necessary for cell structure and making hormones and unlike other fatty acids, our bodies cannot synthesize them. Thus, essential fatty acids must be obtained from foods we eat.

Foods and oils are not sources of one single fatty acid alone; rather each type of fat or oil is a mixture of different fatty acids. Table 4 shows the various components of commonly used fats and oils.

Table 4. Fats and Oils: How do they compare? Source: ADA fact sheet A primer on fats and oils. Available at : www.eatright.org.



5.2.i Vitamins and minerals

Vitamins work as regulators or co-enzymes for chemical reactions of the body. Vitamins are either water-soluble (thiamin - B1, riboflavin - B2, niacin - B3, pyroxidine - B6, cobalamin - B12, folate, biotin, pantothenic acid, choline, ascorbic acid - vitamin C) or fat-soluble (vitamins A, D, E, K). Fat-soluble vitamins can be stored in the body; therefore, excess intake can cause health problems. Water-soluble vitamins cannot be stored in significant amounts; excess intake is simply excreted in urine.

Minerals serve as cellular components; provide structure to bones and teeth; regulate fluid balance, muscle contractions and nerve impulses; can be part of enzymes; and may activate or stimulate chemical reactions in the body. Major minerals (calcium, phosphorus, magnesium, sodium, chloride, potassium) are needed in greater amounts by the body than trace minerals (chromium, copper, fluoride, iodine, iron, manganese, molybdenum, selenium and zinc).

5.2.j Metabolism

"Metabolism" refers to the process by which energy provided by consumed food is utilized on a cellular level to maintain normal body functioning from day to day. Everybody has a different rate of metabolism, and this rate is influenced by age, gender, genes, and level of physical activity. Older and/or sedentary individuals require fewer calories to support their metabolism than young and/or very active individuals. Thus, there is no one calorie level that is appropriate for everyone trying to lose weight. Table 5 lists the components of energy expenditure.

Table 5. Components of energy expenditure

Component	% of Total Energy Expenditure
Basic energy needs at rest	60
Energy for physical activity	30
Energy for digestion of food and absorption of nutrients	10

Energy expenditure is based largely on body weight or mass. For healthy individuals maintaining weight, energy needs equal energy expended.

5.2.k Body composition

Body mass is divided into fat mass and fat-free mass. Fat free mass is often used interchangeably with lean body mass (LBM); however, they are not the same. Lean body mass is the more appropriate terminology to use in terms of energy needs/expenditure. To clarify, LBM is the part of the body free of adipose tissues and includes the skeletal muscles, water, bone, and a small amount of essential fat in the internal organs, bone, marrow, and nerve tissues. These elements are "metabolically active", which means they burn calories even at rest. Therefore, the more lean body mass one has, the more calories one burns, even in the absence of extra physical activity.

As total mass increases, more calories are required to maintain that greater weight level. It should be noted that muscle and even skeletal mass adjust to some extent to support the changing burden of adipose tissues. Conversely, when weight is lost, fewer calories are required to maintain the new lower weight (energy expenditure decreases). Caloric intake must be constantly adjusted to reflect changes in weight and body composition.

For men, healthy percentage body-fat ranges between 8–24%. For women, this range is slightly higher, between 21-35%.

5.3 Nutrition guidelines

5.3.a Dietary Guidelines for Americans and MyPyramid.gov

To lose weight, patients need to create a calorie deficit. A calorie deficit can be achieved through either:

1. decreased calorie intake, or
2. increased calorie expenditure through physical activity, or
3. both

An achievable and sustainable weight loss for most overweight and obese individuals is a rate between ½ lb - 2 lbs per week. For many veterans, rates at the lower end of this range may be more achievable and sustainable since a smaller calorie deficit is required. Table 6 displays weekly and daily Calorie deficits required for various rates of weight loss ranging from ½ to 2 lbs per week.

Table 6. Calorie deficits for various rates of weight loss

Rate of Weight Loss	Approximate Weekly Calorie Deficit	Approximate Daily Calorie Deficit
½ lb	1750	250
1 lb	3500	500
1 ½ lbs	5250	750
2 lbs	7000	1000

A daily 250 kcal deficit translates to a weight loss of 26 lb per year. Examples of small lifestyle changes that can result in a 250 kcal deficit:

- Moderate physical activity for 30 minutes daily, OR
- Eliminating one 20-oz bottle of regular soda daily, OR
- Eliminating 2 regular sized cookies daily

It is usually not necessary for veterans enrolled in *MOVE!* to "count" calorie intake and expenditure religiously. Healthy food choices and increases in physical activity will create a calorie deficit for most.

Calorie requirements based on age, sex, and level of physical activity

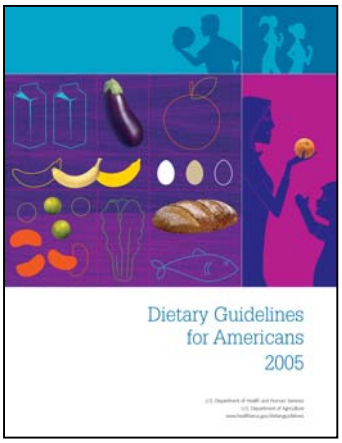
Table 7 provides rough calorie needs for individuals based on age, sex, and level of physical activity. These estimates are based on energy needs of a person with a healthy weight. Thus, a veteran who is overweight/obese may be able to create a gradual calorie deficit and lose weight slowly by maintaining food intake near these levels. Faster weight loss can be achieved by increasing levels of physical activity or by reducing energy intake further resulting in a net calorie intake below these levels.

Table 7. Calorie Needs Based on Age, Sex, and Physical Activity Level

	Calorie Range
	Sedentary → Active
Females	
19-30 years	2,000 → 2,400
31-50 years	1,800 → 2,200
51+ years	1,600 → 2,200
Males	
19-30 years	2,400 → 3,000
31-50 years	2,200 → 3,000
51+ years	2,000 → 2,800

In 2005, the US Department of Health and Human Services and the US Department of Agriculture released a new version of Dietary Guidelines for Americans that provides science-based advice to promote health and to reduce risk for major chronic diseases through diet and physical activity. MyPyramid, the name of the new Food Pyramid, is based on these Dietary Guidelines which encourage most Americans to eat fewer calories, be more active, and make wiser food choices.

http://www.mypyramid.gov/



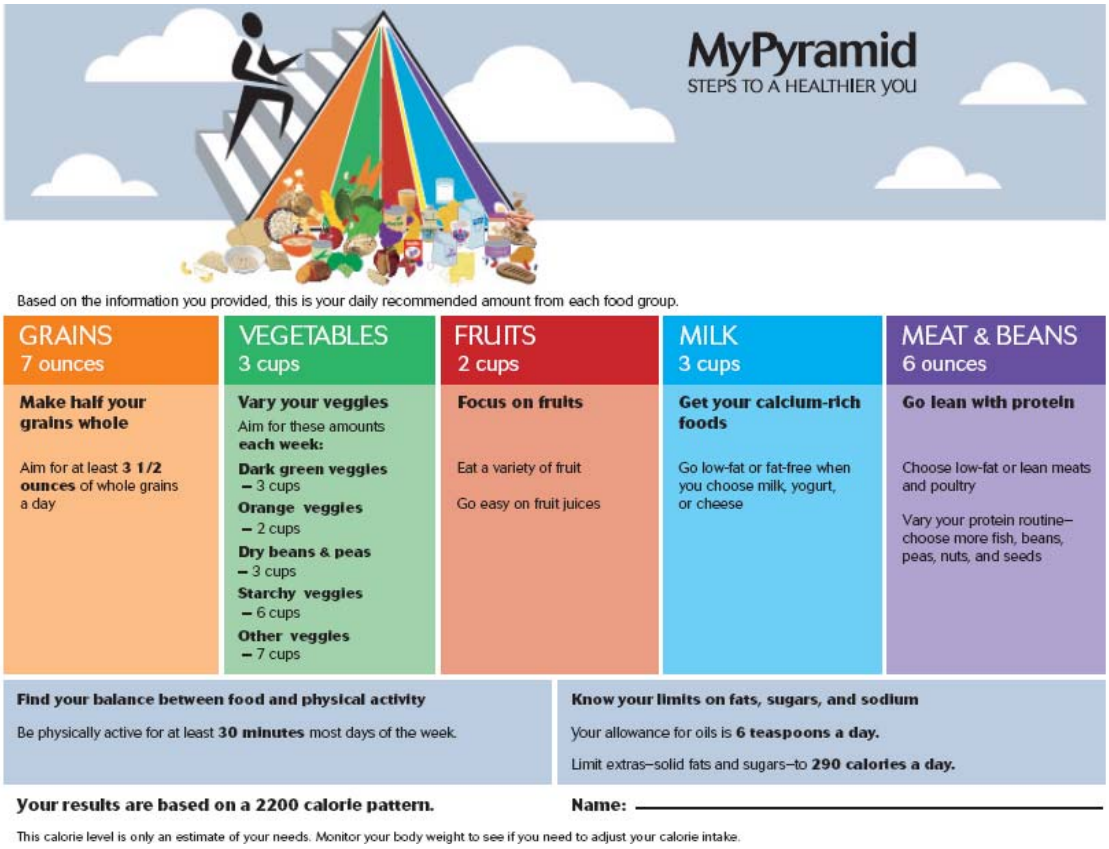
www.health.gov/dietaryguidelines

Take a tour of the new food guide pyramid at this address:
http://www.mypyramid.gov/global_nav/media_animation.html

The key message of the new MyPyramid is to consume a variety of nutrient-rich foods and beverages within and among the basic food groups while choosing foods that limit the intake of saturated and trans-fats.

MyPyramid Resources

MyPyramid Plan
This interactive tool will customize a pyramid based on age, sex and current activity level. For example here is the plan for a 54 year old male who is currently active for less than 30 minutes per day.



You can access this tool at: http://www.mypyramid.gov/mypyramid/index.aspx

MyPyramid Worksheet: daily meal tracking worksheets based on the individualized plan
MyPyramid Tracker: an online dietary and physical activity assessment tool that provides information on diet quality, physical activity status, related nutrition messages, and links to nutrient and physical activity information.

Key recommendations from Dietary Guidelines

Carbohydrates

Choose fiber-rich fruits, vegetables, and whole grains often. Choose and prepare foods and beverages with little added sugars or caloric sweeteners (e.g., high fructose corn syrup).

Sodium and potassium

Consume less than 2,300 mg of sodium per day (approximately 1 tsp of salt). Choose and prepare foods with little salt. At the same time, consume potassium-rich foods, such as fruits

and vegetables. For individuals with hypertension, blacks, and middle-aged and older adults, aim to consume no more than 1,500 mg of sodium per day.

Alcoholic beverages

Those who choose to drink alcoholic beverages should do so sensibly and in moderation. Women should limit consumption to no more than 1 drink per day and men should limit to no more than 2 drinks per day. *(Note: Alcohol provides "empty" calories and is therefore not recommended for persons trying to lose weight.)*

Food groups to encourage

Consume a sufficient amount of fruits and vegetables while staying within energy needs. Two cups of fruit and 2½ cups of vegetables per day are recommended for a reference 2,000-calorie diet with higher or lower amounts depending on individual calorie needs.

Choose a variety of fruits and vegetables each day. In particular, select from all 5 vegetable subgroups (dark green, orange, legumes, starchy vegetables, and other vegetables) several times a week. *Note that there are several ways to categorize vegetables by color. Consult the following websites for more information:*

Produce for a Better Health Foundation: www.5aday.com
US Department of Health and Human Services: www.5aday.gov

Consume at least three 1-ounce-equivalents of whole-grain products per day and aim for at least half of daily grain consumption to come from whole grains. Color alone does not indicate a whole-grain; the only way to tell for sure is by reading labels. Look for the following ingredients to be listed first on the label: whole wheat flour, whole oats/oatmeal, whole-grain corn, brown or wild rice, whole rye, whole-grain barley, buckwheat, and bulghur (cracked wheat).

Consume 3 cups/day of fat-free (skim) or low-fat (1/2% or 1%) milk or equivalent milk products (low fat cheese or yogurt). For the lactose intolerant, consider: lactose-free products, use of lactase enzyme tablets, or non-dairy calcium fortified foods such as juices, cereals, breads, soybeans or other soy products, canned fish with bones, and leafy greens (collard and turnip greens, kale, bok choy).

Fats

Consume less than 10 percent of calories from saturated fat and less than 300 mg/day of cholesterol. Keep total fat intake between 20 to 35 percent of calories, with most fats coming from polyunsaturated and monounsaturated sources such as fish, nuts, and vegetable oils such as olive, sunflower, safflower, canola, soybean, and corn. Keep trans-fat consumption as low as possible.

Trans-fats are the types of fats contained in many processed foods. Examples of products containing trans-fats include baked goods (cakes, cookies, breads, pies), margarine, fried potatoes, snack chips, and shortening. Food manufactures are starting to produce products free of trans-fats so it's important to read the food label. Look for the words "partially-hydrogenated" on the ingredient label to help identify trans-fat.

When selecting and preparing meat, poultry, dry beans, and milk or milk products, make choices that are lean, low-fat, or fat-free. Meat and dairy products such as cheese and butter are the largest sources of saturated fat in the typical American diet.

Dietary needs of special populations

People over age 50 have trouble absorbing naturally occurring sources of vitamin B12. They should be encouraged to consume foods fortified with vitamin B12 (e.g., fortified cereals). Vitamin B12 supplements are also an option to meet this need.

Older adults, people with dark skin, and people exposed to insufficient sunlight such as those in northern climates or who are housebound should be encouraged to consume foods fortified with vitamin D (e.g., fortified milk or orange juice). Vitamin D supplements are also an option to meet this need.

Women of childbearing age should be encouraged to consume foods high in iron (e.g., meats, lentils, beans, spinach) or foods that are iron fortified (e.g., fortified instant cooked and dry cereals). Women who may become pregnant should be encouraged to consume foods fortified with folic acid (e.g., breads, cereals) and/or use folic acid supplements.

Simple summary message

Minimize animal products which tend to be higher in total fat, saturated fat, and cholesterol. Maximize plant products like vegetables, fruits, and whole grains, which tend to be lower in fat and cholesterol and higher in fiber. When choosing animal products, make lean choices (skim milk, lean cuts of meats).

Think carefully before eating highly processed and refined foods or drinking alcohol. These products generally lack good nutrients such as vitamins, minerals, and fiber and almost always have added fats and sugars that pack on the calories.

5.3.b Additional nutrition guidance

Within *MOVE!*, Primary Care staff generally assist veterans in setting basic weight management goals and provide telephone follow-up on progress toward goals.

Realistic goals

Research supports the clinical benefits of a 10% body weight loss. For some veterans enrolled in *MOVE!,* 10 percent equates to a significant number of pounds. This target loss or new target weight can sometimes be overwhelming as a goal for both patient and practitioner. Short-term goals based on ½ - 2 lb weight loss per week may be more realistic and potentially achievable. Initial success with smaller goals can breed trust and confidence that longer-term, larger goals can be achieved. Remember *MOVE!* is about life-long, lifestyle change.

Keep in mind also that success is not merely measured by number of pounds lost. Prevention of further weight gain is a “win”. Accomplishment of improved behavior in regard to eating and physical activity should be commended. Such change can translate into improvement in other measures of health, i.e., blood pressure, blood glucose, blood lipid levels. In addition, enhanced sense of well-being and energy can serve as markers for motivation.

It is inevitable that with weight loss attempts, plateaus will occur. At these times, it is imperative to focus on accomplishments to date. For example, the number on the scale may not have changed, but percent of lean mass and other measurements such as waist circumference may have improved. Ask the veteran about how he/she feels and how their clothes are fitting.

Balance, moderation, and variety

These are 3 magic words for food selection. This means we should choose adequate amounts of food from each category of food, and we can enjoy all kinds of foods but not overdo it in any one group. It also means that calorie intake should match with energy needs. Excessive calorie intake over time translates to increased body fat storage contributing to overweight and obesity.

Good vs. bad foods

Nutritionally, there is no good food or bad food. There are only inappropriate choices of food, amounts of food, food combinations, or dietary patterns. In discussing food and diet, acknowledge people's preferences, respect their family traditions, and be sensitive to their cultural background.

5.3.c Specific diets

The word diet in contemporary terminology has a temporary connotation. Often, the dietary focus for lay people is the latest fad. *MOVE!* is about long-term, lifestyle modification and success with weight control; thus, changes advocated must be realistic, achievable and sustainable. *MOVE!* also acknowledges that one size does not necessarily fit all with weight management, behavior modification, or dietary and physical activity improvement.

There is no one type of diet that is better for weight loss than any other diet. Fad diets come and go. (e.g., low carb diets, grapefruit diet, Hollywood diet and many others). Any diet that provides a calorie deficit relative to expenditure will cause weight loss. Most diets are effective in the short-term, because they do result in a net calorie deficit. However, a diet that focuses too much on one type of food, to the exclusion of other types, may not be healthy or sustainable in the long-term. Studies of people who have lost large amounts of weight and maintained this loss over many years have also found that regular physical activity is just as important of a factor for long-term weight loss maintenance.

The recommended dietary breakdown, for health or weight management is:

- 15-20% protein
- 20-30% fat
- 50-60% carbohydrate

Low carbohydrate diets

An ongoing debate persists as to the recommended composition (percentage carbohydrate, protein and fat) of the diet for weight management. A commonly held belief, possibly due to the popularity of such high protein diets as “Atkins”, is that carbohydrate is the “enemy” and contributes to the overweight and overfat epidemic in America.

Excess dietary carbohydrate and protein can be converted to fatty acids in the liver through lipogenesis. However, this process requires 3 times more energy than does the conversion of dietary fat to fat storage and as such does not provide a significant contribution to fat stores. Most body fat comes directly from dietary fats as evidenced by the fact that the fatty acid composition of fat tissue mirrors the fatty acid composition of the diet. Yet, lowering fat intake alone does not always solve the problem. As a population, Americans are eating less fat but are becoming more overweight and obese. The culprit is excess calories, regardless of source. Thus, calorie reduction either by changing food choices or decreasing food volume or both should be the focus of reduction.

Limitations of low carbohydrate diets

Research is limited and has not shown that low-carb diets are more efficacious as compared to low calorie, low fat diets. The long-term efficacy of low carbohydrate diets has not been evaluated. Fruit and vegetable consumption is limited thus compromising intake of vitamins, minerals, and fiber. Foods advocated or selected by patients as part of a low carb diet can be higher in fat, namely saturated fat, which can negatively alter blood lipids and thus increase the risk for heart disease.

The brain requires glucose to function. In the absence of glucose, the brain reverts to synthesis from digested or stored fat, an inefficient process. As a result, blood glucose can be lower, mental alertness can decrease, and a feeling of lethargy can develop. Low carb, high protein diets diminish accessible glucose/glycogen needed for physical activity. The restrictions on allowed foods with low carbohydrate diets can elicit frustration, boredom and cravings on behalf of the patient. This diet is also contradictory to a vegetarian eating plan. And finally, low carb specialty items on the market are expensive.

Several recent articles have appeared in the medical literature evaluating various types of specific diets. A 2005 randomized clinical trial compared the Atkins, Ornish, Weight Watchers, and Zone Diets over 1 year. All of these diets reduced weight modestly at 1 year. No diet was superior in terms of weight loss and all had very poor adherence rates. Weight loss was strongly associated with dietary adherence, but not diet type. A 2005 systematic review evaluated major US commercial and/or non-profit weight loss programs lasting 12 weeks to 2 years. Programs evaluated included Weight Watchers, Jenny Craig, LA Weight Loss, Health Management Resources, OPTIFAST, Medifast, eDiets.com, TOPS, and Overeaters Anonymous(OA). With the exception of Weight Watchers, few of these programs have been evaluated in multi-site randomized controlled trials with outcomes longer than 3 –6 months. The medically supervised programs (OPTIFAST, Health Management Resources) which were mostly evaluated through case-series found large short-term weight losses (15-25% at 3-6 months) but long-term weight loss maintenance was only 5% at 4 years. There was little evidence in support of internet-based programs or organized self-help programs (TOPS, OA).

5.4 Nutrition assessment, goal setting, and supporting self-management

5.4.a *MOVE!23* and nutrition assessment

The MO*VE!23* provides a mechanism to ascertain basic information for several factors important for nutrition assessment and goal setting. These include:

- BMI
- medical history
- weight history
- prior and current attempts at weight loss
- family history
- social support
- dietary intake
- lifestyle behavioral factors
- importance of and confidence regarding lifestyle and health improvement
- readiness for change.

Specific problem nutrition behaviors that the *MOVE!23* assesses includes: liquid calories, snacking, frequency of eating away from home, eating speed, episodes of eating that are out of control, environmental and other barriers to changing eating habits. Also, previous and current attempts/methods of weight loss are ascertained.

5.4.b Nutrition goal setting

While the ultimate goal is for veterans to create a small calorie deficit each day or week, veterans should detail specific nutritional changes in their lifestyle they will use to reach this goal. These changes should be realistic to facilitate successful accomplishment. Small, incremental changes to diet are better than large drastic changes. Some examples of some realistic, feasible nutrition goals:

- Replace regular soda with diet soda.
- Substitute one high-calorie snack with a fruit or vegetable each day.
- Drink low-calorie flavored beverages (e.g., Crystal Light®, FruitH_20®) instead of juice-like beverages (e.g., Kool-Aid®, Punch, Orange-Ade, etc.).
- Instead of drinking fruit juice, eat the actual fruit.
- Grill meats instead of deep-frying.
- Switch from butter to a trans-fat free butter-like spread.
- Substitute fresh or frozen fruit desserts for high calorie cakes, cookies, and pies.
- Limit portion sizes.
- Add regular “healthy” snacks throughout the day to avoid temptation to overeat at meal times.

These are just some examples. Goals will and should vary by individuals. Rather than providing the veterans with goals, elicit his or her help in coming up with goals that are relevant to him or her.

Keeping food records

For many patients trying to manage weight, keeping track of food intake can be helpful to identify problem patterns and areas for improvement in order to be successful with weight loss. Use of a food record by patients supports self-management by actively involving the patient in his or her care. Food records can roughly be categorized into 2 types: food logs and food journals. A food log simply provides a method of listing foods and beverages consumed. Weight management brings together nutrition and behavior change. Food journals allow for the capture and examination of timing of meals/snacks, degree of hunger and satiety, environmental influences, and feelings or emotions associated with eating.

Veterans will receive a food record sheet at the time of initial enrollment as part of the 10 standard handouts. Another food records is available as patient handout *(N14) Food Record.* In addition to a traditional paper and pencil food record, online versions are available. Some have the enhancement of nutrition analysis. Such a web-based tool has been created by the USDA, MyPyramid Tracker, and can be found at www.mypyramidtracker.gov. My Pyramid Tracker is free to use.

5.4.c Nutrition patient handouts

The following nutrition *MOVE*! patient handouts are available:

N01 - All Foods Can Fit
N02 - Calcium
N03 - Dairy
N04 - Hunger and Fullness
N05 - Eating At Home
N06 - Eating Well On A Budget
N07 - Fast Food Alternatives
N08 - Fat Out Flavor In
N09 - What Are The Types Of Fat
N10 - Food Nutrition Label
N11 - Food Label Quiz
N12 - Healthy Plate
N13 - Fruit
N14 - Food Record
N15 - Sodium
N16 - Special Occasion Eating
N17 - Liquid Calories
N18 - Make It Quick
N19 - Making A Meal Plan Work In A Family
N20 - Protein
N21 - Serving Sizes
N22 - Be a Frequent Feeder
N23 - Nutrient Label Claims
N24 - Recipe Smart Stand - Ins
N25 - Restaurant Tips
N26 - Snack Attack
N27 - Spice It Up
N28 - Grains
N29 - Sweet Suggestions
N30 - Vegetables
N31 - Water Drink Up

5.4.d Nutrition group modules

Group sessions are an efficient way to provide information, guidance, and support to veterans participating in weight management. The ***MOVE!*** **Quick Start Manual** discusses the structure and format for group sessions in detail. One component of the group session is the topical discussion which generally focuses either on a nutrition or physical activity topic with an emphasis on behavioral aspects. Below find a list of *MOVE!* group session modules that cover nutrition topics.

GN01 - Cook It Light And Quick Leader
GN02 - Dining Out Leader
GN03 - Fast Foods Leader
GN04 - Food Pyramid Leader
GN05 - Be A Frequent Feeder Leader
GN06 - How To Eat Better Leader
GN07 - Obesity And Your Health Leader
GN08 - Reading Food Labels Leader
GN09 - Snacks And Sweets Leader
GN10 - Water Leader
GN11 - Weight Management Attitude Leader
GN12 - Weight Management Exercise Leader
GN13 - Weight Management Lifestyle Changes Leader
GN14 - Weight Management Nutrition Knowledge Leader

5.4.e Individual specialty consultation

Self-management Support (Level 1) and *Group Sessions* (Level 2) provide basic assistance for veterans participating in *MOVE!*. Some veterans may need additional treatment and/or guidance on an individual basis. Examples of such veterans include:

- Veterans who need closer supervision when making dietary changes (may include older veterans, veterans with complex or multiple medical problems, and veterans who take multiple medications)
- Veterans who are planning or who have had a bariatric surgery procedure
- Veterans with food allergies or multiple food intolerances
- Veterans who fail to lose weight with self-management support through primary care and/or group session participation
- Veterans who are motivated to obtain more detailed individualized nutrition guidance

Registered Dietitians (RD) are health professionals who can provide individual consultation to veterans needing specialty consultation.

5.5 Advanced nutrition counseling for weight management

This section is designed for advanced nutrition counseling providing during individual specialty consultation with veterans enrolled in the *MOVE!* program.

5.5.a Weight loss rate and composition

An achievable and sustainable weight loss for most overweight and obese individuals is a rate between ½ lb - 2 lbs per week (See Table 6). The first 2 weeks of dietary, physical activity, and behavior change will yield the most rapid rate of weight loss. The main component of early weight loss is water due to the decrease in sodium consumption and the mobilization of glycogen stores (results in loss of water and carbohydrate).

After this initial diuresis, it is best for weight loss to continue at the rate of no more than ½ - 2 pounds per week. A pound of weight is part lean and part fat. Even though not ideal, lean mass will be lost with any weight reduction attempt. The goal of course is to maximize fat loss; the aim is 75% fat loss and 25% lean. Greater lean tissue loss will compromise muscle mass, most importantly the heart.

A net deficit of 3,500 Calories is used as an approximate guide to achieve 1 lb weight loss. However, a range (3,200 - 4,200) is more accurate considering variation based on the ratio of fat to lean loss. Restricting weight loss to ½ - 2 pounds or 1% of initial weight will help ensure that a pound of weight lost contains mostly fat.

5.5.b Calculating energy expenditure

In a clinical environment, the gold standard to determine energy expenditure is indirect calorimetry. Indirect calorimetry estimates energy expenditure by measuring oxygen consumption and carbon dioxide production of the body over a given period of time. Access to a metabolic cart or other similar device for measurement is often limited and impractical for outpatient use.

A more portable, hand-held device for measuring metabolic rate and oxygen consumption (MedGem®) was approved for use by the Food and Drug Administration. This device is more convenient to use and allows for measurement of resting energy expenditure (REE) rather than estimation based on formulas, but use of such a device is not widespread. Thus, clinicians must rely on predictive formulas to estimate REE to calculate total energy expenditure (TEE). Much debate has ensued over the accuracy and practical application of such formulas, particularly as they relate to overweight/obesity. It is more difficult to estimate the energy expenditures of overweight and obese patients because their varied body composition and distribution of body fat affects overall energy expenditure.

Energy needs can be calculated based on actual weight in kilograms and adjusted for activity level via the quick method in Table 8 below:

Table 8. Quick method for estimating energy needs for normal, overweight, and obese individuals.

	(kcal/kg)		
	Sedentary	**Moderate**	**Active**
Overweight	20-25	30	35
Normal	30	35	40
Underweight	30	40	45-50

From the VISN 6 Diet Manual (Appendix 1) Adapted from Shils ME, Goodhart RS. Modern Nutrition in Health and Disease 6th Edition. Philadelphia, Lea & Febigfer, 1980.

There are several other formulas that can be used to calculate energy needs or adjust weight for obesity. Those available in CPRS/Vista will be noted with an asterisk (*) below.

*Harris-Benedict Energy Equation (HBEE)**

HBEE is multiplied by a Physical Activity Factor (PAF) to achieve TEE(see Table 9 for PAF).
HBEE is in kcal/day; W = weight in kg; H = height in cm; A = age in years

For Males: HBEE = 66.5 + [13.7 x W] + 5.0 x H – [6.8 x A]
For Females: HBEE = 655 + [9.6 x W] + [1.85 x H] – [4.7 x A]

Reference: Harris JA, Benedict FG: A Biometric Study of Basal Metabolism in Man. Carnegie Institution of Washington, Pub. No. 279, Philadelphia: J.B. Lippincott, 190-227, 1919.

Mifflin-St. Jeor

MSJ is multiplied by a Physical Activity Factor to achieve TEE (see table 9 for PAF).
MSJ is in kcal/day; W = weight in kg; H = height in cm; A = age in years

Male: MSJ = (10 x W) + (6.25 x H) – (5 x A) + 5
Female: MSJ = (10 x W) + (6.25 x H) – (5 x A) – 161

Reference: Mifflin MD, St. Jeor ST, Hill LA, Scott BJ, Daugherty SA, Koh YO. A new predictive equation for resting energy expenditure in healthy individuals. Am J Clin Nutr. 1990;51:241-247.

Table 9. Physical activity factors (PAF) for use in calculating energy needs in HBEE and MSJ equations.

Activity Level	Sample Activities	Activity Factor	
		Female	Male
Very Light	driving, typing, sewing, ironing, cooking	1.3	1.3
Light	walking 3 mph, house cleaning, golf, child care	1.5	1.6
Moderate	walking 4 mph, dancing, tennis, cycling	1.6	1.7
Heavy	running, soccer, basketball, football	1.9	2.1

Reference: American Dietetic Association Manual of Clinical Dietetics. 1996; p.16.

Institute of Medicine (TEE)

TEE = kcal/day; A = age in yrs; W = weight in kg; H = height in meters; PA = physical activity coefficient; PAL = physical activity level that is the ratio of the TEE to the REE

Normal and Overweight or Obese Men 19 years and older (BMI $\geq$ 18.5 kg/m^2):
TEE = 864 – 9.72 x A + PA [14.2 x W + 503 x H]

Normal and Overweight or Obese Women 19 years and older (BMI $\geq$ 18.5 kg/m^2):
TEE = 387 – 7.31 x A + PA x [10.9 x W = 660.7 x H]

Physical Activity Coefficient (PA)
1.00 if PAL is estimated to be $\geq$ 1.0 < 1.4 (Sedentary)
1.12 if PAL is estimated to be $\geq$ 1.4 < 1.6 (Low Active)
1.27 if PAL is estimated to be $\geq$ 1.6 < 1.9 (Active)
1.54 if PAL is estimated to be $\geq$ 1.9 < 2.5 (Very Active)

Adjustments are also made to kcal/day recommended for age and sex: +/ – 7 kcal for women and +/ – 10 kcal for men for each year above or below age 30

Reference: Institute of Medicine, Food and Nutrition Board; Dietary reference intakes for energy, carbohydrate, fiber, fatty acids, cholesterol, protein, and amino acids, Washington, DC, 2002, The National Academies Press, www.nap.edu.

Ireton-Jones Energy Equation (IJEE)

IJEE = kcal/day; A = age in yrs; W = weight in kg; O = 1 if BMI >27 otherwise O = 0

IJEE = 629 – 11 x A + 25 x W – 609 x O

Reference: Breen HB and Ireton-Jones CS, Predicting Energy Needs in Obese Patients. Nutrition in Clinical Practice. 2004;19(3):284-289.

World Health Organization (WHO)

The WHO energy formula is multiplied by a physical activity factor to achieve TEE (see table below).

Energy = kcal/day; W = weight in kg; H = height in m

Male (30-60 yo): Energy = (11.3 x W) + (16 x H) + 901
Female (30-60 yo): Energy = (8.7 x W) - (25 x H) + 865

	Activity Factor	
Activity Level	**Female**	**Male**
Light	1.56	1.55
Moderate	1.64	1.78
Heavy	1.82	2.1

Reference: http://www.fao.org/DOCREP/003/AA040E/AA040E00.HTM

Formula for adjusting weight for obesity[*]

Limits: Weight must be greater than 120% IBW
(ABW = Actual body weight, IBW = Ideal body weight)

Formula: [(ABW-IBW) x .25] + IBW = Wt for BEE calculation

References: Abraham S: Obese and overweight adults in the United States. Vital and Health Statistics, Series II, No. 230. Hyattsville, MD: DHHS Pub. No. PHS 83-1680, 1983.
Forbes BG, Welle SL: Lean body mass in obesity: International Journal of Obesity 7:99, 1983.
Naeye R, Roode P: The sizes and numbers of cells in visceral organs in human obesity. American Journal of Clinical Pathology 54:251, 1970.

A spreadsheet has been developed that contains ability to calculate energy requirements using the above formulas. It is available for download from the *MOVE!* website.

5.5.c Assessing dietary intake

Obtaining a diet history can be laborious and sometimes efforts seem futile as patients notoriously give poor estimates. Yet, some picture of the current diet should be gleaned in order to progress toward improvement. Food frequency questionnaires are quite lengthy. Other such dietary tools are available with varying length and depth of assessment. Food diaries, average daily counts, and/or 24 hour recalls can provide some insight.

The *MOVE!23* addresses some common troublesome behaviors, i.e., liquid calories, snacking, frequency of eating away from home, eating speed, episodes of eating that are out of control, environmental and other barriers to changing eating habits. Also previous and current attempts/methods of weight loss are ascertained. Veterans' responses to questions that cover these issues are summarized in both the Staff and Patient Reports. In addition, different formats of food records are available as *MOVE!* handouts [(N14) Food Record and (S08) Food and Physical Activity Log)] for use by providers and veterans.

5.5.d Dietary composition

In order to achieve ½ - 2 lb weight loss per week with a ratio of 75% fat to 25% lean composition of body weight loss, the recommended dietary breakdown for health or weight management is:

- 15-20% protein
- 20-30% fat
- 50-60% carbohydrate

Lean sources of protein, healthy fats (mono and polyunsaturated), adequate fruit and vegetable intake along with lowfat dairy and complex carbohydrates are emphasized.

Popular Diets

Most popular diets fall into basic types or categories:

Food specific diets: allege that specific foods have special properties that aid in weight loss (examples: Grapefruit Diet, Cabbage Soup Diet, Cookie Diet)

Low-carbohydrate, high fat diets: less than 20% of calories from or no more than 100 grams of carbohydrate, 55-60% of calories from fat, and 20-25% of calories from protein. These diets cause rapid weight loss from diuresis and are thought to suppress appetite or encourage satiety (examples: Dr. Atkins' New Diet Revolution, The Carbohydrate Addict's Diet). The Zone Diet restricts carbohydrate but not to the same extent: 40% carbohydrate, 30% fat, and 30% protein. Many diets advocating low carb have emerged on the scene to join Atkins, i.e., Sugar Busters, Protein Power, South Beach Diet, etc. Gaining popularity also have been the concepts of glycemic index and glycemic load.

High fiber, low calorie diets:
Moderate fat: 20-30% calories from fat, 15-20% protein, and 55-60 % carbohydrate (example: Volumetrics)
Low-fat: 10-19% of calories from fat
Very low-fat: 10% of calories from fat (examples: Ornish, Pritikin)

Glycemic index

The glycemic index (GI) refers to a system of evaluating and ranking foods according to their ability to raise blood sugar in comparison to a reference food, i.e., white bread or glucose. Each food is given a number or rating (on a 100 point scale) achieved by averaging blood sugar responses from a group of individuals. Foods with higher GI values (> 50) cause large increases in serum glucose thus stimulating a large release of insulin. Foods with lower GI values (< 50) create a smaller cascade effect on insulin. Lower GI foods are thought to encourage satiety thus decreasing calorie consumption.

Glycemic load

Glycemic load (GL) is calculated by multiplying the glycemic index by the number of grams of available carbohydrate in that food.

Limitations of GI and GL

The GL defines the glycemic effect of a regular serving size of the food whereas, the GI is based on reference amounts larger than what people normally eat. The GI and GL are based on eating isolated foods not combinations of food and GI and GL values have not been ascertained for all foods. One person's glycemic response to a food may be markedly different than another's. GI values for the same food vary among publications, different reference foods, difference in blood samples (capillary vs. venous), and variation in study sources. A low GI and/or GL does not mean that a food is low in calories. Considering blood sugar control as the

main reason for use of GI or GL, the American Diabetes Association Dietary Guidelines provide no support for the use of the glycemic index in the management of type 1 or 2 diabetes.

5.5.e Restricted energy eating prescription

Medically recognized approaches to energy restriction include the following categories:

Low Calorie Diets (LCD)

The LCD provides caloric reduction of 500-1000 kcal per day and is balanced, nutritionally-rich, and healthy. Composition: 15-20% protein, 20-30% fat, and 50-60% carbohydrates

Fiber is increased to reduce caloric intake and aid in satiety; whole grains, vegetables, fruit, lowfat dairy and lean sources of protein are emphasized. Energy is reduced such that fat stores will be mobilized to assist in meeting daily energy needs. Vitamin and mineral supplements are recommended with plans that provide less than 1200 kcal for women or less than 1800 for men.

Methods vary for achieving the LCD: calculating fat grams, calculating calories, exchange system, guidelines for dietary change, food logs.

Meal replacements

Recent studies have shown that weight losses increase significantly with the prescription of portion-controlled meals with a known energy content. Portion-controlled meals facilitate adherence to calorie goals. Meal replacements can come in the form of drinks/shakes, powders, bars or pre-portioned meals. These products are replacements; one problem is that they serve as substitutes or stand-ins not capable of offering variety or complete nutrient needs. Meal replacements do offer an option when it is difficult to obtain food appropriate for weight control. However, meal replacements are not always available or accessible to all. Hence, skills for food choice and preparation cannot be dismissed and must be taught and practiced.

Examples of meal replacements or pre-portioned meals available from typical grocery stores: Slimfast® (liquid, powder, bar meal replacements), pre-portioned meals (Lean Cuisine®, Healthy Choice®, Weight Watcher's Smart Ones®, Various Store Brands)

Examples of specialized sources of meal replacements and low-calorie diets:

HMR: http://www.hmrprogram.com Consumer information: 1-800-418-1367
This weight management program is franchised by medical centers across the country and the program is physician supervised. The program contains modules combining information on behavior, nutrition and activity. Groups are taught by health professionals. Low Calorie and Very Low Calorie Diet program options are available that offer a combination of liquid and regular-food meal replacements.

Jenny Craig, Inc. http://www.jennycraig.com 1-800-775-JENNY
A commercial weight loss program offered as Jenny Craig In-Centre or Jenny Direct. With the Jenny Direct, food items are shipped to the participant's home. Counseling is done weekly over the phone. With both, support is also available online. Weight loss is supervised by employees trained by the company. Registered dietitians are on staff at the corporate level. Food guidelines are given, but Jenny Craig meals are also purchased by participants.

Nutrisystem http://www.nutrisystem.com 1-800-321-THIN
A commercial weight loss program with online and telephone counseling options. Food is available for purchase with direct delivery to home or office.

Optifast http://www.optifast.com Part of Sandoz Pharmaceuticals, this Very Low Calorie Diet Program is also franchised by medical centers across the country, and the program is physician supervised. Optifast contains modules combining information on behavior, nutrition, and activity. Groups are taught by health professionals. A combination of liquid shakes and food bars can be used as meal replacements.

Very Low-Calorie Diets (VLCD)

The VLCD provides 200-800 kcal per day with 0.8-1.5 g/kg IBW/day of protein. Supplementation is required to provide the full complement of required vitamins, minerals, electrolytes, and essential fatty acids. It should only be used for 12-16 weeks.

One example of a VLCD is the protein-sparing modified fast (PSMF). The PSMF provides 1.5 g/kg/day protein in the form of lean meat, fish, and poultry and no carbohydrate; only the carbohydrate contained within the protein sources themselves. Another example is commercially formulated liquid diets based on egg or milk protein; they provide 33-70 g protein, 30-45 g carbohydrate and a small amount of fat.

The NIH Guidelines include a recommendation against the use of VLCDs as the risks outweigh the benefits. Furthermore, LCDs were just as effective as VLCDs in producing weight loss at one year. The VHA Information Letter: Efficacy of High Protein Low Carbohydrate Diet in Promoting Weight Loss (IL 10-2005-005) states that calories should not be restricted to less than 800 calories per day in a healthy eating pattern.

VLCDs have serious risks including the following:

- Cardiac complications, including risk of sudden death
- Serum electrolyte imbalance including potassium loss
- Loss of body protein
- Increase in urinary ketones →interference with renal clearance of uric acid → increase in serum uric acid levels → gout
- Mobilization of fat stores → higher serum cholesterol → increased risk of gallstones

Additional adverse effects of VLCDs:

- Cold intolerance
- Fatigue
- Thinning reddened hair
- Anemia
- Diarrhea
- Dry skin
- Light-headedness
- Nervousness
- Euphoria
- Constipation
- Menstrual irregularities for women

Non-diet approach

There is a growing movement away from the concept of diets. Conscious or intuitive eating, often referred to as the non-diet approach, has the premise that as an individual eats healthfully, becomes aware of hunger and satiety clues, and incorporates physical activity in their life, migration toward a natural weight will occur. Similar to *MOVE!,* this approach focuses on achieving health rather than a specific or ideal weight. Size acceptance and respect for diversity of body shape and size are advocated.

Dietary intervention is not "One Size Fits All"

Considering that the development is complex, the process for change is not simple. Rather than rules, there are guidelines within which to work with the patient to achieve weight control and health improvement. Thus, *MOVE!* does not focus on sample menus at specific calorie levels to be given to all veterans. The expertise of the dietitian and other providers is recognized including their ability to facilitate health behavior change and determine amount of structure required.

5.5.f Addressing problem eating behaviors

There are some common eating behaviors that are barriers to weight management. The *MOVE!23* identifies some of these. These and others should be addressed. Table 10 provides a list of common problem eating behaviors in weight management.

Table 10. Common problem eating behaviors in weight management

- Not eating breakfast
- Skipping meals
- Constant nibbling, grazing or snacking
- Eating while watching TV, working on the computer, reading, driving or on the go
- High intake of calorie-dense, micronutrient poor foods
- Large portions
- Frequent consumption of meals/snacks from restaurants, fast food places, vending machines, convenience stores, etc.
- Liquid calories (sugar-sweetened beverages, alcohol)
- Overeating at meals
- Binge eating
- Eating too fast
- Splurging at holidays, parties or other gatherings
- Eating based on emotions/stress

5.5.g Other issues that may be of concern with the veteran population

The veteran population presents some special concerns with respect to weight management. While they may not apply to every veteran, keep these issues in mind as you work with veterans. Many veterans do not cook or prepare their meals either by choice or ability. Some still eat as if they are in battle mode for active war and survival. Some like to present a tough person image; they can handle fat and calorie-laden foods. Poor dentition is a problem making it difficult to consume some healthier foods that are firm in texture, i.e., leaner cuts of meat, crisp cooked vegetables, fresh fruit and vegetables, etc. Cooking with fat and/or for great lengths of

time (depleting micronutrients) softens food. Often, foods higher in fat, sugar and calories are softer in texture, i.e., desserts, etc. Many veterans have lower incomes, which can sometimes make it difficult to purchase healthier foods, i.e., leaner cuts of meat, fresh fruit and vegetables, etc, difficult. These same veterans may live in areas where a farmers market or grocery store that has fresh produce is not convenient. For some veterans, disabilities make trips to the store an arduous task. Staples are purchased that may be less healthy choices. Keep in mind that lower income, hunger, food insecurity, and obesity often occur together.

5.5.h Nutrition education topics

MOVE! staff can provide education on the following concepts in order to equip the veteran with the skills needed to be successful with weight management. *MOVE!* handouts are available for some of these topics.

- Description of macronutrients and micronutrients
- Demonstration of creating balanced (carbohydrate, protein and fat) meals and snacks for sustained energy
- Variety among and within food groups
- Portion control/moderation
- Focus on volume foods higher in water, fiber, and micronutrients that are lower in fat and calories
- Hydration
- How to listen to the body – hunger, satiety
- How to deal with cravings, trigger foods
- How to read food labels
- How to keep a food journal
- How to prepare food with less fat, sugar, and salt
- Meal planning
- Shopping tips
- Food budgeting
- Planning ahead, i.e., normal daily eating as well as special events
- Tips for eating away from home
- Energy for physical activity
- Health literacy – how to evaluate nutrition information in the media and from other sources

5.5.i Clinical monitoring

Large changes in weight status can increase some health risks; thus. patients should be monitored. Close attention must be paid to patients with comorbidities. The dietitian plays a role in this, not only for the role that nutrition can place in reduction of further health risk, but also as one more set of eyes on the scene. It is the responsibility of the *MOVE!* healthcare team to be aware and to work together in providing the highest quality of care for the veteran. It should also be noted that it is quite tempting, especially for weight loss patients, to place blame on the “diet” and give permission for discontinuation when in actuality this is not the true picture of what is happening. The following are potential medical complications of weight loss:

Diuresis/rate of weight loss

The largest weight loss will occur in the first 2 weeks, mainly due to water. If diuresis of 10 lbs or more occurs within the first week, the primary care provider should be contacted. After diuresis, the rate of weight loss should be restricted to no more than 1% of initial weight or 1-2

lbs per week. If weight loss is more rapid, intake should be increased by 200 kcal increments to stabilize to the preferred rate of loss.

Dehydration

With significant diuresis, dehydration is a concern. Thus, adequate water/fluid intake should be emphasized.

Aggravation of heart disease

During the initial weight loss phase, significant diuresis and/or too rapid of a drop in weight can occur, sometimes resulting in arrythmias or congestive heart failure. Replacement of adequate sodium, potassium, and magnesium may be necessary. Weight reduction can induce a catabolic state for the heart. This may require modification or termination of the lower calorie eating plan.

Lowering of blood pressure

An eating pattern that is hypocaloric or of a specific nutrient composition (i.e., DASH Diet) can result in reduction of both weight and blood pressure. For hypertensive patients, medications are usually a part of the equation. Rapid weight loss may result in hypotension. Drug nutrient interaction should also be considered. Cooperation and communication among the healthcare team and patient are parts of the solution.

Hypokalemia

Monitoring of electrolytes is desired during the first few weeks of rapid weight loss and diuresis. A very restrictive diet or significant diuresis can result in hypokalemia in an individual with initial borderline normal potassium. Inclusion of additional potassium sources in the meal plan and/or supplementation may be warranted.

Hyperuricemia

Obesity and upper body adiposity is associated with higher serum levels of uric acid. Very low calorie diets, a very low carbohydrate eating pattern, red wine, and purines can aggravate uric acid levels. Slowing the rate of weight loss and adding carbohydrate to the diet may be the best solution.

Dyslipidemia

Weight loss usually improves lipid levels. However, that is not always the case. HDL-C can decrease, and serum cholesterol increase as mobilization of fat stores occurs.

Gallbladder disease

Approximately 20 mg of additional cholesterol is produced for each kilogram of extra body fat. No collateral increase in bile acids or phospholipids is seen with weight loss. Thus, with mobilization of fat stores, bile becomes supersaturated with cholesterol. Furthermore, with the lower calorie, often lower fat meal plan, the need for bile is decreased and contraction of the gallbladder is reduced setting the stage for development of cholesterol-type gallstones. Keeping the rate of weight loss to no more than 1% per week may prevent this problem. If

using a formula or very low fat eating plan, add 11 grams of fat at one meal per day in order to stimulate the gallbladder.

Nonalcoholic fatty liver disease

Obesity is associated with a significantly greater flow of fatty acids through the portal vein into the liver. As a result more lipid is stored in the hepatocytes resulting in fatty liver. This usually reduces with weight loss. However, with mobilization of fat stores, flux of lipid through the liver is significant and can result in elevation of liver enzymes. Weight loss that is too rapid can result in hepatic inflammation.

Hypoglycemia

For diabetic patients, weight loss will generally result in lower blood sugars. Giving more food to alleviate hypoglycemia is counterproductive to weight loss. Rather current dosages of diabetic medication can be evaluated for adjustment. Reduction of medication provides opportunity to even further reduce caloric intake. Patients should be encouraged to consistently monitor blood sugars if not already doing so. Team work among the patient, primary care provider, and dietitian can help maintain blood sugars within a safe range.

Weight loss medication

When dietary intervention occurs concurrent with use of weight loss medication, care must be taken to differentiate the source of any side effects that occur.

Side effects of sibutramine include elevations in blood pressure and/or heart rate, dry mouth, insomnia, constipation, headache, and anorexia. Frequent office visits are necessary to ensure safe use of sibutramine. See Chapter 7 for more information on sibutramine.

Because the mechanism of action for orlistat is in the gut rather than in the bloodstream, it has few side effects outside the gastrointestinal (GI) system. GI side effects include oily spotting, flatulence, flatulence with discharge, fatty/oily stool, oily evacuation, increased defecation, fecal incontinence, fecal urgency, abdominal pain/discomfort, bloating, dyspepsia, and diarrhea. These GI side effects are generally a result of fat that goes undigested through the GI tract, thus meals very high in fat tend to cause more symptoms than meals lower in fat. This can serve as a negative reinforcer for the patient to consume a nutritionally-balanced, reduced-calorie diet with no more than 30% of calories from fat. The absorption of fat soluble vitamins can be affected due to the interference with fat absorption. Thus, a multivitamin/mineral supplement including vitamins A, D, E, and K should be taken by the veteran and timed to be taken at least 2 hours before or after meals/orlistat consumption. See Chapter 7 for more information on orlistat.

Constipation or diarrhea

Changes in eating pattern, introduction of new foods, increase in fiber, etc., can cause GI issues, i.e., flatulence, constipation or diarrhea. An appropriate intake of fluids, gradual increase in fiber and tips on reducing gas should be discussed with the patient. If symptoms persist, the veteran should be referred to the primary care provider.

Depression

Depression is common among obese patients and sometimes resolves with weight loss. However, depression can actually be stimulated by the weight control regimen due to calorie reduction and changes in body size. With low carbohydrate diets, serotonin can become decreased and affect mood. If this is an issue, some carbohydrate can be added to the eating pattern, perhaps with strategic timing to help alleviate this. Care should be taken not to remove all favorite, treat or trigger foods from the meal plan but to consciously show the veteran how they can be included in balanced eating. Communication is also key as the veteran embarks upon and continues with weight control tackling issues related to rate of weight loss and any plateaus, lapses, or relapse, etc.

5.5.j. Nutrition and physical activity

For some, initiation of physical activity instills the idea of a need for special drinks and/or foods for athletic performance. Such products are typically a significant source of calories and in most cases are unneeded.

Overweight and obese veterans may be just beginning to introduce or increase activity. They should receive instruction on hydration and appropriate use of low-calorie electrolyte beverages. Generally, these products are not required unless engaging in more than 60-90 minutes of vigorous-intensity activity. Coordinating timing of exercise with usual planned meals or snacks will help provide energy for activity without adding extra, unnecessary calories that are counterproductive. For diabetic patients this is particularly important along with blood glucose monitoring to avoid episodes of hypoglycemia.

Take every opportunity to reinforce with veterans the importance of physical activity in addition to dietary change for weight management.

Chapter 6
Facilitating Physical Activity

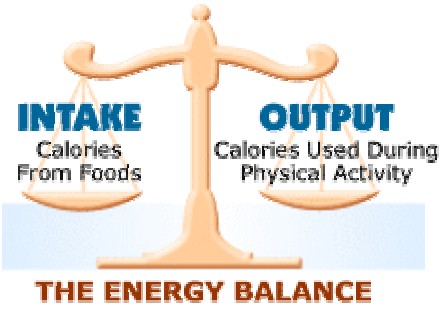
Decreasing levels of physical activity is one of the main contributions to the epidemic of overweight and obesity. The majority of US adults are not active enough. More than half do not perform the minimum amount of physical activity to achieve health benefits and even worse, a quarter of the population does not engage in any physical activity. The evidence now suggests that sedentary individuals can improve their health and well being by becoming even moderately active. Physical activity is also an important part of any weight loss program.

The *MOVE!* Program recognizes the need for meeting the physical activity needs of all veterans. It takes into account the fact that many factors play a part in weight gain and because many veterans have co-morbidities and physical limitations, they may need special guidance about appropriate levels and types of physical activity. This chapter is designed as a reference for counseling veterans about physical activity over the phone, in group sessions, or during individual office visits.

6.1 Energy balance

A calorie deficit can be created by reducing calorie intake, increasing calorie expenditure through physical activity, or better yet, doing both. The importance of energy intake versus energy expenditure is likely to be discussed with the patient during the nutrition component of the program but also requires focus from the physical activity perspective (see Figure 14). The patient should understand that overweight/obesity is usually the result of a net energy surplus over a long period of time (months or years) and that combining increased physical activity with a reduction in energy intake will result in an energy deficit leading to weight loss. For long-term success, weight loss should be gradual and based on a change of lifestyle that can be maintained.

Figure 14. The energy balance



The evidence supports a recommended weight loss rate per week of between ½ -2 lbs. The net calorie deficit associated with this rate is realistic and achievable for most people. This rate can lead to clinically significant weight loss in a reasonable amount of time and is more likely to be sustained. *MOVE!* is a lifestyle program. Thus, the focus is on patients making sustainable changes. Weight loss that occurs gradually is more likely to be maintained than rapid weight

loss. Weight loss rates above 2 lbs per week are usually associated with the loss of lean muscle mass and should be avoided. Lean muscle mass should be preserved and gradually increased through strength training to improve insulin sensitivity and burn even more calories (Recall that lean muscle mass is metabolically active, whereas fat mass is not.).

6.2 Definitions of physical activity terms

Physical activity can be categorized as follows: lifestyle activity or programmed activity.

Lifestyle activity is performed during the routine tasks of daily living while at home or at work and does not need to have large blocks of time set aside in order to engage in it. Programmed physical activity is the type of activity we generally think of as “exercise” and is usually performed during large chunks of time set aside for the explicit purpose of physical activity.

Encourage veterans to choose a variety of physical activities to help them meet their goals, prevent boredom, and keep the mind and body challenged. The choice of activities is highly individual. Some veterans may be able to achieve weight loss goals entirely through lifestyle activities; others may need to incorporate some programmed physical activity.

6.2.a Physical activity intensity

Light-intensity is defined as activity that requires minimal effort and has little to no effect on heart rate, breathing, and sweating. Examples include: standing, slow walking, folding laundry, etc. There are few health benefits associated with light-intensity activity; but, very sedentary individuals often need to start with light-intensity activity in order to build endurance for higher intensity activities.

Moderate-intensity activity is defined as activity that causes some increase in heart rate, breathing, and light sweating but can be sustained for a period of time (~45 minutes) without too much difficulty. Individuals DON’T have to be active for 45-minutes; they just need to be working at an intensity that they COULD sustain for 45 minutes without much difficulty. Examples include brisk walking, cycling on level terrain, dancing, hard house/yard work, or golfing without a cart. Note that some of these activities might be considered "hard" or "very hard" by some sedentary or older individuals.

Vigorous-intensity activity is defined as activity that is intense enough to represent a substantial cardiorespiratory challenge (i.e., hard breathing, fast heart rate, large sweating). Examples include running, aerobics classes, continuously swimming laps, and competitive racquet sports.

6.3 Safety issues

All patients do not automatically need to see a physician before beginning a program of physical activity. In many cases, moderate-intensity activity is safe without formal medical clearance. Nursing and other non-medical *MOVE!* staff can refer to Figure 15 the *Physical Activity Decision Aid* as well as the veteran’s *MOVE!23* Staff Report to help decide when it is safe for an individual veteran to begin increasing physical activity levels without seeing his or her primary care provider for medical clearance.

Figure 15. Physical Activity Decision Aid

1. Acutely ill?	**Yes** →	**Delay discussion of physical activity until condition improved/resolved**
No ↓		*Acute infection, illness, or injury*. For example: acute low back pain, active retinal hemorrhage, shortness of breath at rest, undiagnosed chest pains, symptomatic hernias. *Uncontrolled or unstable chronic conditions*. For example: hyper or hypoglycemia, heart failure exacerbation, COPD exacerbation, rheumatoid arthritis flare, severe anemia, symptomatic hyper or hypothyroidism.
2. Known Cardiovascular or Pulmonary Disease?	**Yes** →	**Refer for medical evaluation prior to beginning moderate or vigorous physical activity**
No ↓		*Heart Disease:* heart attack (MI), CABG/open heart surgery or angioplasty, angina, valvular heart disease, congestive heart failure, arrhythmias, pacemaker or implantable defibrillators *Peripheral Artery Disease*: bypass surgery in lower extremities, claudication, ischemic foot ulcers or amputation due to ischemia *Cerebrovascular Disease*: stroke, transient ischemic attack (TIA), carotid artery surgery *Pulmonary Disease*: COPD or emphysema, asthma, shortness of breath
3. Diabetes, HTN or ≥ 2 Cardiac Risk Factors?	**Yes** →	**Moderate aerobic activity okay, refer for medical evaluation prior to vigorous activity**
No ↓		Smoking, high cholesterol or taking cholesterol lowering medication or special diet, family history of early heart disease (age< 50).
4. Limiting Musculoskeletal or Joint Condition?	**Yes** →	**Moderate aerobic activity okay, refer for medical evaluation prior to vigorous activity or strength and flexibility training**
No ↓		Chronic low back pain, symptomatic arthritis, amputation, spinal cord injury, osteoporosis
5. Man ≥45 y or Woman ≥55 y?	**Yes** →	**Moderate aerobic, strength and flexibility training activity okay; refer for medical evaluation prior to vigorous aerobic activity**
No ↓		
May participate in moderate or vigorous aerobic, strength, and flexibility activities		

Definition of Moderate Exercise: Activities that are the equivalent of brisk walking at 3-4 miles/hour (i.e., a 15-20 minute mile pace). This may be considered "hard" or "very hard" by some sedentary or older individuals so moderate can alternatively be defined as intensity within the individual's capacity to sustain for a prolonged period of time (~ 45 minutes), which has a gradual initiation and progression and is noncompetitive. Some increase in heart rate and breathing, and light sweating.

Definition of Vigorous Exercise: Exercise intense enough to represent a substantial cardiorespiratory challenge (hard breathing, fast heat rate, large sweating).

In summary these tools specify that:

- Patients who are acutely ill or have cardiac or pulmonary disease should always see their primary care provider before starting or increasing "moderate" or "vigorous" physical activity.

- Men ≥ 45 years, women ≥ 55 years, and patients with diabetes or hypertension can start or increase to a program of "moderate" intensity activity but should see their primary care providers before beginning "vigorous" activity. Patients with limiting musculoskeletal conditions should see their primary care providers before beginning strength or flexibility activities.

When counseling veterans who are increasing their levels of physical activity, explain normal responses to exercise:

- Cardiac output (heart rate and stroke volume) increases with work rate and oxygen uptake.
- Blood pressure (systolic) increases with increasing levels of exercise.
- Breathing increases with increased oxygen consumption.
- Perspiration occurs.

Also, discuss the signs and symptoms for which they should immediately stop activity:

- Severe chest pain or pressure
- Severe shortness of breath
- Severe nausea or vomiting
- Sudden onset one-sided extremity weakness or changes in sensation
- Difficulty swallowing, talking, or seeing
- Severe headaches or dizziness

Instruct the veteran to call 9-1-1 (or Emergency Medical Services) immediately if symptoms do not resolve within a few minutes. Other new or worsening symptoms that occur when beginning or increasing physical activity should trigger a medical evaluation by the primary care provider.

Many of the physical activity patient handouts provide other safety tips for veterans. Make sure the patient understands the type and amount of physical activity that is right for him/her. Teach the patient to listen to his/her body and take time out and rest if he/she feels fatigued or sick. Instruct him/her to wear comfortable shoes and clothes that are appropriate for the type of physical activity he/she will be doing. Take proper precautions for activities in extreme weather conditions; in cool climates wear layers of clothing that can be easily removed as the body warms up. In hot and humid climates, stay well hydrated and protect the skin from sun with the use of sunscreen or lightweight clothing. For outside activities, advise the patient to take a buddy or tell someone where he/she will be going and when to expect his/her return. Incorporate stretching into the activity routine to prevent injury (refer to several available patient handouts). Drink plenty of water before, during, and after physical activity to replace water lost through sweating and increased breathing.

There are additional concerns and recommendations when counseling veterans with specific medical conditions and/or physical limitations and some of these are discussed in Section 6.10.

6.3.a Cardiovascular risks

The most serious risk of increasing physical activity is a major cardiovascular event (i.e., myocardial infarction or unstable angina) and this risk is higher for vigorous-intensity activity as compared to moderate-intensity. In most cases, the benefits of regular activity will outweigh the

risks. The risks associated with a cardiovascular event are transient. Events occur most often in the setting of increased myocardial oxygen demand in persons with either known or unknown coronary artery disease. Two mechanisms have been proposed for triggering these events: ischemia-induced arrhythmias or plaque rupture with acute thrombosis. Table 11 describes patient characteristics associated with adverse activity-related cardiovascular complications.

Table 11. Patient Characteristics Associated with Exercise-Related Cardiovascular Complications

- Clinical Status
  - Multiple myocardial infarctions
  - Impaired left ventricular function (ejection fraction < 30%)
  - Rest or unstable angina
  - Serious arrythmias at rest
  - High-grade coronary occlusions in certain vessels
  - Low serum potassium
- Exercise Training Participation
  - Disregard for appropriate warm-up and cool-down
  - Consistently exceeds prescribed training heart rate (i.e., intensity violators)
- Certain Exercise Stress Test Characteristics
- Other
  - Cigarette smoker
  - Male gender

Adapted from : ACSM's Guidelines for Exercise Testing and Prescription 6th ed.

6.3.b Non-cardiovascular risks

Physical activity also has non-cardiovascular risks. While these risks may not be life-threatening, they are far more common, and if not handled appropriately, may become barriers to further physical activity participation. The most common non-cardiovascular risks are typically musculoskeletal in nature and involve the soft tissues (muscle, ligaments, tendons, fascia), joints, and bones. Two types of these injuries can occur: acute injury (e.g., falls, slips, overexertion in an unconditioned person) and chronic injury (e.g., overuse syndromes, chronic inflammation, arthritis).

Other risks include

- Dehydration
- Trigger of an asthma attack in some patients
- For outdoor physical activity, environmental-related injury (heat exhaustion, frostbite, sunburn) and the risks of being assaulted or hit by a car/truck

6.3.c Minimizing the risks of physical activity

Despite the risks, physical activity can be done safely and can lead to health benefits including weight loss. The following are recommendations to reduce the incidence and severity of complications during exercise:

Ensure medical clearance, if needed

Not all veterans require medical clearance prior to beginning a program of physical activity. The need for medical clearance depends on several factors:

- Age of patient
- Medical conditions
- Intensity of planned activity

The *MOVE!23* Staff Report and the *MOVE! Physical Activity Decision Aid* (Figure 15) can guide non-medical staff as to when to refer patients for a medical evaluation prior to increasing physical activity. Two additional tools have been developed for use by medical staff to help decide about the need for further exercise stress testing, medically supervised exercise (e.g., cardiac rehabilitation), or other restrictions/precautions for patients. These tools include the *Physical Activity Readiness Exam* (PAR-medX) (Figure 10) and the *Pre-Exercise Cardiovascular Risk Stratification Chart* (Figure 9). Physicians or other providers who evaluate veterans for medical clearance prior to beginning a program of physical activity can also use the *Pre-Exercise Medical Evaluation Template* (Figure 11) to guide their approach. These tools can be found in Chapter 3 and are also available for download from the *MOVE!* website.

Provide on-site medical supervision, if necessary

Most *MOVE!* patients will NOT require medical supervision for their planned physical activity, but efforts should be made to make arrangements for those who do. Medically supervised programs are equipped with a defibrillator, emergency medications, and qualified staff to respond in the event of a serious exercise-induced complication. Cardiac rehabilitation programs are examples of such programs. Often these programs have several intensities of monitoring ranging from continuous electrocardiographic (ECG) monitoring to simply having a crash cart and available staff nearby.

Establish an emergency plan

Whether supervised or not, all veterans should be helped to have a clear understanding of the previously listed signs and symptoms for which they should stop exercising and seek medical attention. Veterans should be encouraged to keep identification with them at all times and let others know their approximate whereabouts when engaging in outdoor activities. If possible, carry a mobile/cellular phone in case assistance is required.

Promote participant education

Help veterans become familiar and comfortable with self-monitoring intensity of their own activity through heart rate and/or perceived exertion. Encourage veterans to stay within parameters you and their healthcare team discuss with them. Instruct and demonstrate proper form and technique for strength and flexibility training to minimize risk for musculoskeletal injury. Offer other resources (handouts, websites, etc.) for veterans to get more information on specific topics of interest to them.

Initially, encourage mild-to-moderate exercise intensity

Risks can be minimized by encouraging mild-moderate intensity exercise. Most exercise-induced cardiovascular complications and orthopedic injuries result from vigorous activity in poorly conditioned individuals with a history of poor compliance to prescribed safety parameters. While vigorous activity is important for maximal cardiovascular fitness, many health benefits can be achieved through moderate-intensity activity. This type of activity should be particularly encouraged for the veteran who has limiting medical conditions and/or who is sedentary or older.

The ability to regulate exercise intensity is easiest with activities such as walking, cycling, swimming, etc., compared with recreational games. Depending on the competitive nature of participants, recreational games may increase adrenaline levels due to the excitement of competition. However, recreational games are often more enjoyable and provide variety. Encourage veterans to seek out activities that minimize competition and/or modify game rules to control the intensity.

Emphasize appropriate warm-up and cool down including stretching before and after activity

A disproportionate share of cardiac events occur during the warm-up, cool-down, and immediate post-exercise phases of aerobic activity; thus, it's important that warm-up and cool-down periods be of adequate duration and progressive in intensity. A progressive cool-down phase is especially important after vigorous activity to 1) enhance venous return to the heart and reduce the risk of post-exercise hypotension and 2) prevent an abrupt rise in plasma catecholamines which can have an activating effect on the heart. Stretching and flexibility exercises can be done as part of the warm-up, cool-down, or both and are important for minimizing musculoskeletal injuries.

Take precautions in the cold and heat

Extreme weather conditions, whether too hot or too cold, can increase cardiac work and lead to reduced coronary blood flow precipitating symptomatic or asymptomatic ischemia. Obese patients are at increased risk for heat-related illness due to impaired heat dissipation. Also note that a prior history of heat-related illness is a good predictor of future heat problems.

In cold weather, reduce excess heat loss and risk for frostbite by:

- Changing wet clothing often, particularly socks and gloves
- Wearing several layers of light clothing that can be shed or replaced as needed
- Using "wick-away" clothing that absorbs perspiration
- Wearing a hat
- Using a face mask

In hot weather, reduce risk for dehydration and heat stress by:

- Wearing clothing that allows for sweat evaporation
- Exercising when it is cooler such as the early morning or late evening
- Relocating to a shadier, breezier area, or move indoors (e.g., the mall)
- Reducing intensity and/or adding rest breaks
- Regularly consuming water before, during, and after activity
- Using low-calorie electrolyte replacement drinks for hydration when activity is of particularly long duration (> 60-90 minutes) and of vigorous intensity

6.4 FITT: frequency, intensity, time, and type

6.4.a Physical activity recommendations

FITT is an acronym to describe the 4 components of physical activity. FITT stands for:

Frequency: How often is physical activity performed? Typically this is described as the number of days per week.

Intensity: How hard is the physical activity performed? Activities can typically be classified as light, moderate, or vigorous intensity.

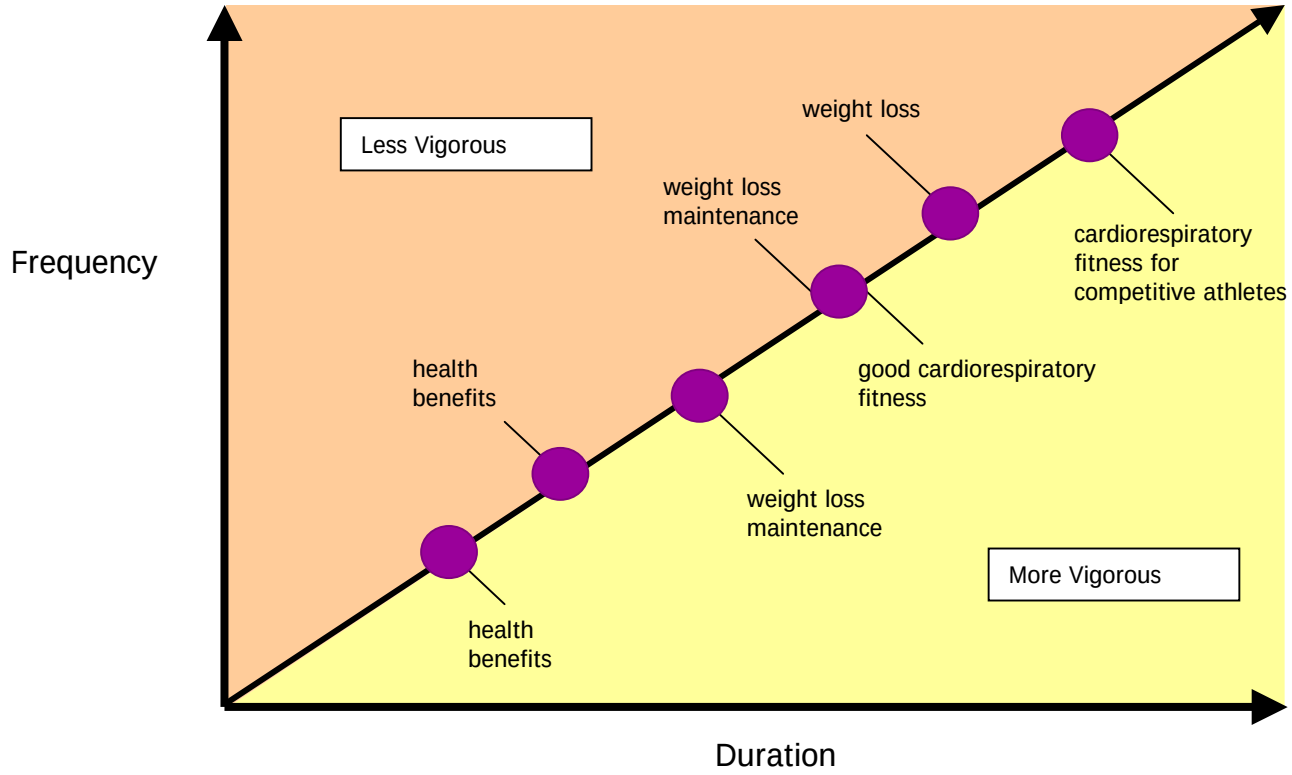
Time or duration: For how long is physical activity performed? Typically duration is described in minutes per session.

Type: Physical activity can be broadly classified as aerobic, strength, or flexibility; or more specifically classified like bicycling, running, weight-lifting, yoga, etc.

Over the last several years, there has been some controversy over how much physical activity people need. A minimum of 30 minutes of moderate-intensity activity on at least 5 days of the week or 20 minutes of vigorous-intensity on at least 3 days per week is the physical activity recommendation associated with some health benefits including reduced risk of overall mortality, coronary artery disease (CAD), and diabetes. Furthermore, there is evidence to suggest that physical activity improves some conditions (obesity, osteoporosis, osteoarthritis, depression, anxiety) and leads to improved health-related quality of life.

Figure 16 demonstrates the relationship between frequency, duration, and intensity with respect to various physical activity goals. Compared to more vigorous activities, less vigorous activities require higher frequency and/or duration to achieve similar goals.

Figure 16. The relationship between frequency, intensity, and duration with respect to various physical activity goals.



In concrete terms, this relationship translates to the recommendations for various physical activity goals presented in Table 12.

Table 12. Physical activity recommendations for various goals. Recommendations based on CDC, Surgeon General, Institute of Medicine, and American College of Sports Medicine physical activity recommendations

Goal	Duration and Intensity	Frequency
Health benefits	30 minutes of moderate 20 minutes of vigorous	At least 5 days per week At least 3 days per week
Significant weight loss	90 minutes of moderate 60 minutes or vigorous	5-7 days per week
Weight loss maintenance	60 minutes of moderate 30 minutes of vigorous	5-7 days per week
Cardiorespiratory fitness	45-60 minutes of vigorous	5-7 days per week

Many sedentary individuals may be intimidated by the frequency and duration associated with the recommendation for significant weight loss; thus, it may be helpful to initially emphasize physical activity goals for health benefits. Remember that energy expenditure is an important part of the energy balance equation and that even small daily expenditures in a previously sedentary individual can accumulate and result in small-modest amounts of weight loss over time. Because individuals' metabolisms vary, some will lose weight at the lower end of the physical activity recommendations, whereas others may need levels at the higher end just to prevent weight gain.

Advise veterans to start slowly if they have been inactive. Stick to the initial plan even if it seems too easy at first. Frequency, intensity, and duration of physical activity should be based on what is reasonable and acceptable to the patient. Initial advice for many patients may involve accumulating 10-minute bursts of moderately-intense physical activity over the course of the day. Once the patient has established some form of regular physical activity, he/she can then be encouraged to increase frequency and duration.

6.4.b Measuring physical activity intensity

Patients often ask "How hard should I be exercising?"

What is easy for one person may be hard for another; thus, you can't tell a veteran exactly how fast to walk or how many pounds to lift when exercising. The best advice is to tell the veteran to listen to his/her body. The level of effort the patient feels he/she is putting into an activity is likely to agree with actual physical measurements.

Traditionally exercise training intensities (in metabolic equivalents [METs]) have been based on a straight percentage of VO_2max. There are however some limitations to using VO_2max in prescribing exercise intensity including variations in the caloric cost of activities for some groups and the fact that caloric cost of an activity does not take into consideration the effect of the

environment, level of hydration, and other variables that can effect the heart rate and rating of perceived exertion.

Alternative methods for measuring activity intensity include the talk test, ratings of self-perceived exertion, and use of target heart rate.

Talk test

A person who is active at a light intensity level should be able to sing while doing the activity. One who is active at a moderate intensity level should be able to carry on a conversation while engaging in the activity. If a person becomes too winded to carry on a conversation, the activity can be considered vigorous.

Ratings of self-perceived exertion

A person's assessment of "how hard" he/she is working is likely to agree with more objective measurements. Patients can be taught to "rate" how hard they are working and to self-regulate activity intensity to keep within the desired range. The Borg Category Rating Scale in Table 13 is one such tool.

Table 13. The Borg Category Rating Scale of Self-Perceived Exertion

The Borg Category Rating Scale		
Least Effort		
6		
7	very, very light	
8		
9	very light	
10		
11	fairly light	**********
12		Aerobic Training Zone
13	somewhat hard	**********
14		
15	hard	**********
16		Strength Training Zone
17	very hard	**********
18		
19	very, very hard	
20		
Maximum Effort		

For health and fitness benefits, aerobic activities should be done at a level 13 - somewhat hard. Strength activities should be done at a level 15-17- hard to very hard. One determines how hard an effort one is making by comparing it to one's maximum effort. As a veteran's body adapts and he becomes more fit, he can gradually make activities more challenging. Activities that used to be hard or very hard may become easier over time and earn a lower Borg Score compared to when he first started. For example, slow walking on level ground initially may be a level 13 effort for some people. As fitness improves, it may take brisk walking up a slight hill to get to that same level 13 effort.

Target heart rate

Target heart rate monitoring is a slightly more objective way to gauge activity intensity. Some medications may affect baseline heart rate and the heart rate response to exercise; thus, this method may not be as useful for patients who take such medicines.

Examples of such medications:

- Slow resting heart rate and limit heart rate response to exercise
  - beta-blockers (atenolol, carvedilol, metoprolol, etc.)
  - some calcium channel blockers (verapamil, diltiazem)
  - digoxin
  - amiodarone

- Increase resting heart rate and exaggerate heart rate response to exercise
  - decongestants (pseudoephedrine, OTC cold products)
  - tricyclic anti-depressants (amitriptyline, desipramine, doxepin, nortriptyline, etc.)
  - atypical psychotropics (aripiprazole, olanzapine, ziprasidone, risperidone, clozapine)
  - theophylline

For moderate-intensity physical activity, a person's target heart rate should be 50 to 70% of his or her maximum heart rate. This maximum rate is based on the person's age. An estimate of a person's maximum age-related heart rate can be obtained by subtracting the person's age from 220.

For example, the estimated maximum age-related heart rate for a 50-year-old person would be calculated as 220 - 50 = 170 beats per minute (bpm).

The 50% to 70% target heart range would be:

- 50% level: 170 x 0.50 = 85 bpm
- 70% level: 170 x 0.70 = 119 bpm

Thus, moderate-intensity physical activity for a 50-year-old person will require that the heart rate remain between 85 and 119 bpm during physical activity. For vigorous-intensity physical activity, a person's target heart rate should be 70 to 85% of his or her maximum heart rate. To calculate this range, follow the same protocol as above but multiply the maximum heart rate by 0.70 and 0.85 instead.

Measuring the heart rate

Generally, to determine whether one is exercising within the heart rate target zone, one must stop exercising briefly to take a pulse. Feel the radial pulse on the artery of the wrist in line with the thumb. Place the tips of the index and middle fingers over the artery and press lightly. Do not use the thumb. See Figure 17 for an illustration of heart rate measurement at the wrist. Start the count on a beat with "zero". Count beats for 10-seconds and multiply this number by 6 to get the heart rate per minute.

Figure 17. Demonstration of the proper technique for taking a radial pulse at the wrist.

Table 14 simplifies the arithmetic involved in using the target heart rate method.

Table 14. Target heart rate ranges for moderate and vigorous intensity activity based on 10 second and full-minute pulse counts.

Age	Max Heart Rate (in beats per minute)	Target Heart Rate Range for Moderate Intensity (50-70% of max in beats per minute)	Target Heart Rate Range for Moderate Intensity (for 10-second count)	Target Heart Rate Range for Vigorous Intensity (70-85% of max in beats per minute)	Target Heart Rate Range for Vigorous Intensity (for 10 second count)
20	200	100-140	17-23	141-170	23-28
25	195	98-136	16-23	137-166	23-28
30	190	95-133	16-22	134-162	22-27
35	185	93-129	16-22	130-157	22-26
40	180	90-126	15-21	127-153	21-26
45	175	88-122	15-20	123-149	20-25
50	170	85-119	14-20	120-145	20-24
55	165	83-115	14-19	116-140	19-23
60	160	80-112	13-19	113-136	19-23
65	155	78-108	13-18	109-132	18-22
70	150	75-105	13-18	106-128	18-21
75	145	72-101	12-17	102-123	17-21
80	140	70-98	12-16	99-119	16-20
85	135	67-94	11-16	95-115	16-19

Patient handouts *(P08) How Hard Should I Exercise* and *(P09) How To Take Your Heart Rate* are available to help patients with measuring the intensity of their activity.

6.4.c Types of physical activities

Encourage the veteran to choose a variety of physical activities to help meet goals, prevent boredom, and keep the mind and body challenged. The best activities are those that the veteran enjoys and is likely to stick to.

Increased regular physical activity can be achieved in 2 ways:

- Lifestyle physical activity
- Programmed physical activity

Lifestyle physical activity

Evidence suggests that health benefits can be achieved by accumulating 10-minute bursts of moderate intensity activity throughout the day. For example, a patient could accumulate 30

minutes of moderate intensity activity daily by engaging in three 10-minute walking sessions. Activities performed during the routine tasks of daily living while at home or at work offer the patient an opportunity to engage in physical activity without having to set-aside large blocks of time. In addition, sedentary, overweight/obese individuals may find it easier, at least initially, to increase lifestyle activities rather than engage in programmed activity. Patients often do not recognize these lifestyle activities as opportunities to be active. Talk with the patient about the many opportunities to incorporate lifestyle activity into daily life. Table 15 provides examples of lifestyle activities. This list is also available as patient handout *(P23) Activities to Fit Your Lifestyle.*

Table 15. Examples of lifestyle physical Activities

- Walk or ride bicycle for transportation instead of car or bus.
- Take the stairs instead of the elevator.
- Park at the far end of the parking lot and walk to your destination.
- Mow the grass and rake the leaves.
- Get off the bus one stop early and walk the rest of the way.
- Walk to every hole instead of riding when playing golf.
- Dance at every opportunity you have.
- Walk the dog, if you don't have one, borrow someone else's.
- Do some extra laps when you are shopping at the mall or grocery store
- Chop or split wood.
- Wash your car.
- Vacuum often.
- Get up to change the TV channel.
- March in place during TV commercials.
- Walk upstairs every time you have something to carry up, instead of waiting for a pile.
- Walk down the hall to talk to a coworker instead of picking up the telephone or sending an email.
- Stretch while watching TV.
- Stand up and walk around while you're talking on the telephone.

Programmed physical activity

Programmed physical activity can be grouped into 3 main types depending on the purpose of the activity; all 3 are important elements of any physical activity program. The 3 types include:

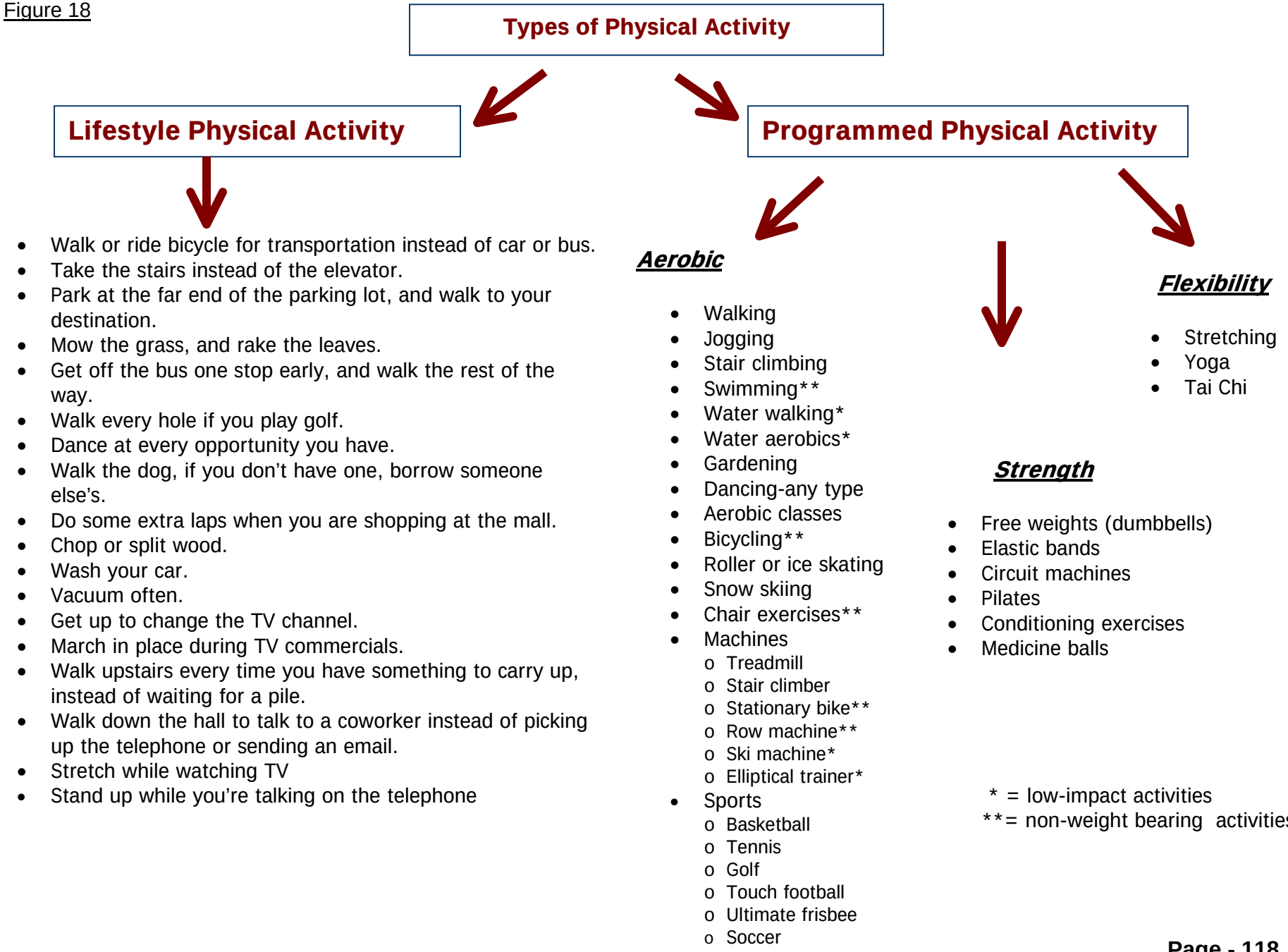
- aerobic activity (sometimes called endurance activity)
- strength training
- flexibility training

Figure 18 shows examples of each of these 3 types of programmed activities.

Aerobic activities

Aerobic activity is best for developing cardiovascular fitness and is good for "burning calories". While we generally think of aerobic activity as things like jogging, aerobic dance class, and stationary bicycling; any activity that causes a light sweat and increased work of breathing that is sustained for some time (say 10-30 minutes) can be classified as aerobic. In terms of aerobic activity for weight loss, exercising longer is recommended over exercising harder. This helps to minimize injury and maximize "fat-burning" metabolism.

Figure 18


Types of Physical Activity
Lifestyle Physical Activity
Programmed Physical Activity
Walk or ride bicycle for transportation instead of car or bus.
Take the stairs instead of the elevator.
Park at the far end of the parking lot, and walk to your destination.
Mow the grass, and rake the leaves.
Get off the bus one stop early, and walk the rest of the way.
Walk every hole if you play golf.
Dance at every opportunity you have.
Walk the dog, if you don't have one, borrow someone else's.
Do some extra laps when you are shopping at the mall.
Chop or split wood.
Wash your car.
Vacuum often.
Get up to change the TV channel.
March in place during TV commercials.
Walk upstairs every time you have something to carry up, instead of waiting for a pile.
Walk down the hall to talk to a coworker instead of picking up the telephone or sending an email.
Stretch while watching TV
Stand up while you're talking on the telephone
Aerobic
Walking
Jogging
Stair climbing
Swimming**
Water walking*
Water aerobics*
Gardening
Dancing-any type
Aerobic classes
Bicycling**
Roller or ice skating
Snow skiing
Chair exercises**
Machines
Treadmill
Stair climber
Stationary bike**
Row machine**
Ski machine*
Elliptical trainer*
Sports
Basketball
Tennis
Golf
Touch football
Ultimate frisbee
Soccer
Flexibility
Stretching
Yoga
Tai Chi
Strength
Free weights (dumbbells)
Elastic bands
Circuit machines
Pilates
Conditioning exercises
Medicine balls
* = low-impact activities
** = non-weight bearing activities

A sample aerobic program for patients is available at the end of this chapter and also on the *MOVE!* website (patient handout *(P31) Sample Aerobic Training Plan for Beginners*).

Strength activities

Every activity, including lifestyle activities, requires a certain amount of strength as well as endurance. Strength training alone may not burn enough calories for weight loss; but stronger muscles, bones and joints will:

- Enable patients to perform activities with less physiological stress
- Reduce the chances of injury during physical activity
- Improve insulin sensitivity
- Help to maintain functional independence throughout the lifespan

Strength activities can range from very low-tech calisthenics or elastic bands to highly sophisticated gym machines. Discuss the following guidelines with the patient:

- Each strength exercise should be done 8-10 times
- Perform strength exercises no more frequently than 2-3 times per week
- Complete all movements in a slow, controlled fashion
- Don't hold your breath
- Stop if you feel pain
- Stretch each muscle after the workout

A sample strength program for patients is available at the end of this chapter and also on the *MOVE!* website (patient handout *(P32) Sample Strength Activity Plan for Beginners*).

Flexibility activities

Stretching is important for balance and for reducing the chance of injury during programmed activities and activities of daily living. Concentrate in particular on achieving an adequate range of motion for the arms, shoulders, upper and lower trunk, neck, and hip regions. Static stretching, which involves slow stretching of the muscle to the point of mild discomfort and then holding that position, is effective, has a low risk of injury, and requires little time or assistance.

Encourage patients to include stretching exercises as warm up and cool down activities before and after programmed activities. Yoga and tai chi movements may also be used to improve flexibility, balance, and agility where the patient has indicated an interest in such activities. Discuss the following guidelines with the patient with respect to stretching activities:

- Complete all movements in a slow, controlled manner
- Gradually progress to greater ranges of movement
- Hold the stretch at the point of mild discomfort for 10-30 seconds
- Repeat each stretch 3-4 times
- Along with stretching before and after programmed activities, try to incorporate simple flexibility exercises into each day.

A sample flexibility program for patients is available at the end of this chapter and also on the *MOVE!* website (patient handout *(P33) Sample Flexibility Activity Plan for Beginners*).

Choice of activities

Some patients will enjoy the opportunity to engage in structured activity while others may prefer lifestyle activities only. A program incorporating aerobic activity, strength training, flexibility, and lifestyle activity will maximize health benefits, minimize injury, and increase endurance. Remember that the overriding objective of any physical activity program is to help the patient adopt regular physical activity that can be sustained safely and enjoyed long-term.

A patient-centered program encourages the patient, rather than the health care team, to generate ideas and solutions. However, given the relative complexities of some strength and flexibility activities, this may be an area where the patient requires more guidance and instruction. Offer instruction in such a way as to remain supportive, empathetic, nonjudgmental, nonargumentative, and nondirective.

6.5 Using exercise prescriptions

An exercise prescription is a specific individualized recommendation for physical activity that is based on an individual's clinical status, fitness level, health needs, and interests. Depending on the situation, it can vary from simple recommendations for unsupervised activity to advice for exercise testing and supervised activity within a formal rehabilitation program. The purpose of an exercise prescription is to:

- Enhance physical fitness
- Promote health
- Ensure safety during exercise

An exercise prescription is a great way to get a patient started with physical activity and can be used during the goal setting stage of the program. It should make recommendations for each of the following components:

F-frequency
I –intensity
T-time (duration)
T- types of activity

The recommended frequency, intensity, and duration can be set at what is reasonable based on the patient's current level of activity or clinical status, or based on a fitness assessment performed by an exercise professional. It is probably easier to list types of activity that are NOT appropriate for a veteran than to try to include every possible activity that IS appropriate. Figure 19 and 20 are Sample Basic and Advanced Exercise Prescriptions that can be used with a veteran much like a hand-written prescription for medication might be done. Issuing a hand-written prescription to a veteran reinforces your message and shows the importance that you place on this issue. These sample exercise prescriptions are also available on the *MOVE!* website.

Basic Exercise Prescription for

_____

Recommended Intensity:

☐ Light [Activities that require a small effort and that don't cause you to sweat or become out of breath]

☐ Moderate [Activities that require a moderate effort, increase your heart rate, and cause a light sweat but can be continued without stopping for rest or breath]

Recommended Duration:

☐ 5-10 minutes per session

☐ 10-30 minutes per session

☐ 30 or more minutes per session

Include additional time for stretching and flexibility exercise at each session.

Recommended Frequency:

☐ At least 3 times per week

☐ 3-5 times per week

☐ 6-7 times per week

Based on your medical condition, the following restrictions on types of activity are recommended:

☐ No restrictions

☐ _____

_____

_____

Figure 19. Basic Exercise Prescription Template

Advanced Exercise Prescription for:

_____

Recommended Intensity and Duration for Endurance Activities:

☐ Moderate [Activities that require a moderate effort, increase your heart rate, and cause a light sweat but can be continued without stopping for rest or breath]

☐ Vigorous [Activities that require a large effort, greatly increase your heart rate and breathing, and cause a large sweat]

- ☐ At least 30 minutes per session
- ☐ 30 - 45 minutes per session
- ☐ 45 minutes or more per session

Recommended Frequency:

Aerobic Activities

☐ 4-5 times per week

☐ 6-7 times per week

Strengthening Activities (weight lifting, resistance bands, push-ups, sit-ups)

☐ 2-3 times per week

Flexibility/Stretching

☐ Daily

Based on your medical condition, the following restrictions on types of activity are recommended

☐ No restrictions

☐ _____

_____

_____

Figure 20. Advanced Exercise Prescription Template.

6.6 Using pedometers

Walking is an excellent starting activity for most patients. A pedometer is a device that counts the number of “steps”. It can be worn inconspicuously on the waistband or belt and it records the total number of forward accelerations. Pedometers do not reliably record steps at very slow walking speeds, activities with side-to-side motions (some types of dancing, tennis, basketball), and activities such as cycling or swimming. It may be discouraging to the wearer to discover that a morning of increased activity resulted in only 100 “steps” due to non-forward movement. Therefore, some veterans can be encouraged to wear the pedometer in places other than the belt, such as on the shoelaces, in order to trigger enough movement to record a "step".

Pedometers can be used to encourage walking and to help set goals. Local Prosthetics and Sensory Aids Services can stock pedometers through the existing national contract and veterans can obtain a pedometer dispensed through this service. Pedometers are also sold at most large department or sporting goods stores. Clinical Practice Recommendations for pedometers dispensed through Prosthetics and Sensory Aids Service have been established and can be downloaded from the *MOVE!* Website. To summarize, these recommendations state the following:

1. Patient Eligibility Criteria
   a. Veteran is interested in using a pedometer.
   b. Veteran has demonstrated ability to operate the pedometer.
   c. Healthcare provider determines that patient would benefit.

2. Indications/ Contraindications
   a. Indications: veterans participating in cardiac, pulmonary, diabetes, weight management, health promotion, or increased physical activity programs
   b. Contraindications: veterans with physical disabilities that prevent them from walking

3. Clinician Responsibility
   a. Veteran should receive training individually or in group on how to use the pedometer. Qualified individuals as determined by each facility may provide this training.
   b. Clinician involved with *MOVE!* may write the prescription for the pedometer to be issued by the Prosthetics and Sensory Aid Services. [Note: this clinician does not necessarily have to be a physician to write for this prescription.]

Guidance for use of pedometers

Instruct the veteran to wear the pedometer for several days to establish a baseline number of steps per day. He/she can then gradually increase the number of daily steps by 500-1000 each week. For example:

A veteran measures his baseline number of steps during an observation period:

Day 1: 2456
Day 2: 3345
Day 3: 1789
Day 4: 2680

Average steps per day during baseline observation period = (2456+3345+1789+ 2680) / 4 days = 2568 steps per day.

For the next week or two, this veteran can set a goal to achieve at least 3000 steps per day. This goal represents an increase of 500 steps per day over the average baseline number of steps. Once successful meeting this goal, the veteran can then set a goal to achieve 3500 steps per day for the next 2 weeks and so on.

An absolute target of 10,000 steps per day is considered "very active" and is often promoted as the standard goal for everyone, but this may not be achievable or sustainable for some people. 10,000 steps per day represents approximately 5 miles/day. For previously sedentary individuals, even 3,000 steps a day is a great accomplishment. Encourage veterans to use pedometers to track relative progress rather than measure up to an absolute standard such as 10,000 steps per day.

Quick reference for pedometer equivalents

One mile = 2,000 average steps (range 1,900 – 2,400). Step equivalents listed in Table 16 are approximate and will vary by individual depending on stride length among other factors.

Table 16. Step equivalents for various activities.

10 minutes of this activity	Step Equivalents	10 minutes of this activity	Step Equivalents
Walking slow - under 2 mph	610	Basketball game	2420
Walking slow - 2 mph	760	Bowling	910
Walking moderate - 3 mph	1000	Gardening	1210
Walking slightly fast - 4 mph	1520	Golf	1360
Jogging	2120	Hiking	1820
Running - 5 mph - 12 minute mile	2420	Backpacking	2120
Running - 6 mph - 10 minute mile	3030	Home/auto repair and shop tasks	910
Running - 7 mph - 8.5 minute mile	3480	House cleaning	910
Running - 8 mph - 7.5 minute mile	4090	Hunting	1520
		Lawn mowing -power mower	1520
Bicycling - under 10 mph	1210	Martial arts	3030
Bicycling - moderate	2420	Miniature golf	910
Bicycling - fast	3640	Raking lawn and leaves	1210
Stationary bicycling (moderate effort)	2120	Racquetball	2120
Stationary bicycling (vigorous effort)	3180	Rowing machine	2120
		Rowing machine, vigorous	2580
Dancing, aerobic dance	1970	Shopping	700
Dancing, ballroom - fast	1670	Soccer	2120
Dancing, ballroom - slow	910	Stretching, yoga	760
Dancing, square dancing	1360	Tennis	2120
		Water aerobics	1210
Swimming leisurely	1820	Water jogging	2420
Swimming laps - moderate	2120	Weight lifting, moderate effort	1210
Swimming laps - vigorous	3030	Weight lifting, vigorous effort	1820

Source: http://walking.about.com/od/measure/a/stepequivalents.htm

Using a pedometer log

Show the veteran how to track his progress by keeping an activity log. He should note when he exercised, what activity he did, how long he did the activity, and how he felt during the activity. Figure 21 is an activity log that can be used by veterans. It is available as patient handout (P25).

Figure 21. Physical Activity/Pedometer Log (Also available as patient handout (P25).

WEEKLY GOAL: _____ **DATE:** _____

	Activity Goal	Steps taken using a pedometer	Type of Physical Activity	Activity Time in Minutes	Goal Met Y/N
Sunday					
Monday					
Tuesday					
Wednesday					
Thursday					
Friday					
Saturday					

Record all physical activity along with the number of steps taken each day if using a pedometer. Record how long you were active, and for how long you planned to be active. Record Y (yes) or N (no) if you met your daily goal. Share this information with your *MOVE!* healthcare team, and use it to set future goals.

6.7 Physical activity goal setting and problem-solving

6.7.a Setting physical activity goals

As with any behavior change, short-term, achievable goals are key to success in maintaining a physical activity program. Advise the veteran to set goals for a short time period, no more than 1-3 weeks at a time. Early success with short-term goals is a powerful motivator to continue. As discussed in Chapter 4, goals set should be SMART:

S-specific

M-measurable

A-attainable

R-relevant

T-time-based

An example of a SMART physical activity goal might be: "On at least 5 days out of the next week, I will walk for at least 30 minutes.". As opposed to this goal, which is not SMART: "I will try to get more exercise.". An exercise prescription and/or the Physical Activity Pyramid [Figure 22 and Patient Handout (P26)] may be particularly useful as you discuss physical activity goals with patients.

Refer veterans to the standard patient handout number *S02- Set Your Weight Loss Goals* and assist with setting personal goals. As goals are met and fitness increases, re-evaluate and set new goals.

In addition to the overall duration and frequency goals, it is sometimes helpful to set other types of goals. Examples of such goals include:

- I will take the stairs instead of the elevator at every opportunity.
- I won't use weather as an excuse not to exercise.
- I will replace 30 minutes of television with stretching or other activities.
- I will include 2 sessions of strength training per week

6.7.b Increasing duration and intensity of activity

As veterans are successful with meeting initial physical activity goals, it is important to keep increasing duration and in some cases intensity of physical activity. As previously discussed, regular moderate-intensity activity is critical for long-term weight loss maintenance. Increases in intensity and duration should be based on what is reasonable and acceptable to the patient. For weight loss, exercising longer is generally more effective than exercising harder. Therefore, *MOVE!* patients should be encouraged to increase the frequency and duration of physical activity before increasing the intensity. Once aerobic capacity and endurance increases, strength training can provide other health benefits through improved muscular strength.

ACTIVITY PYRAMID

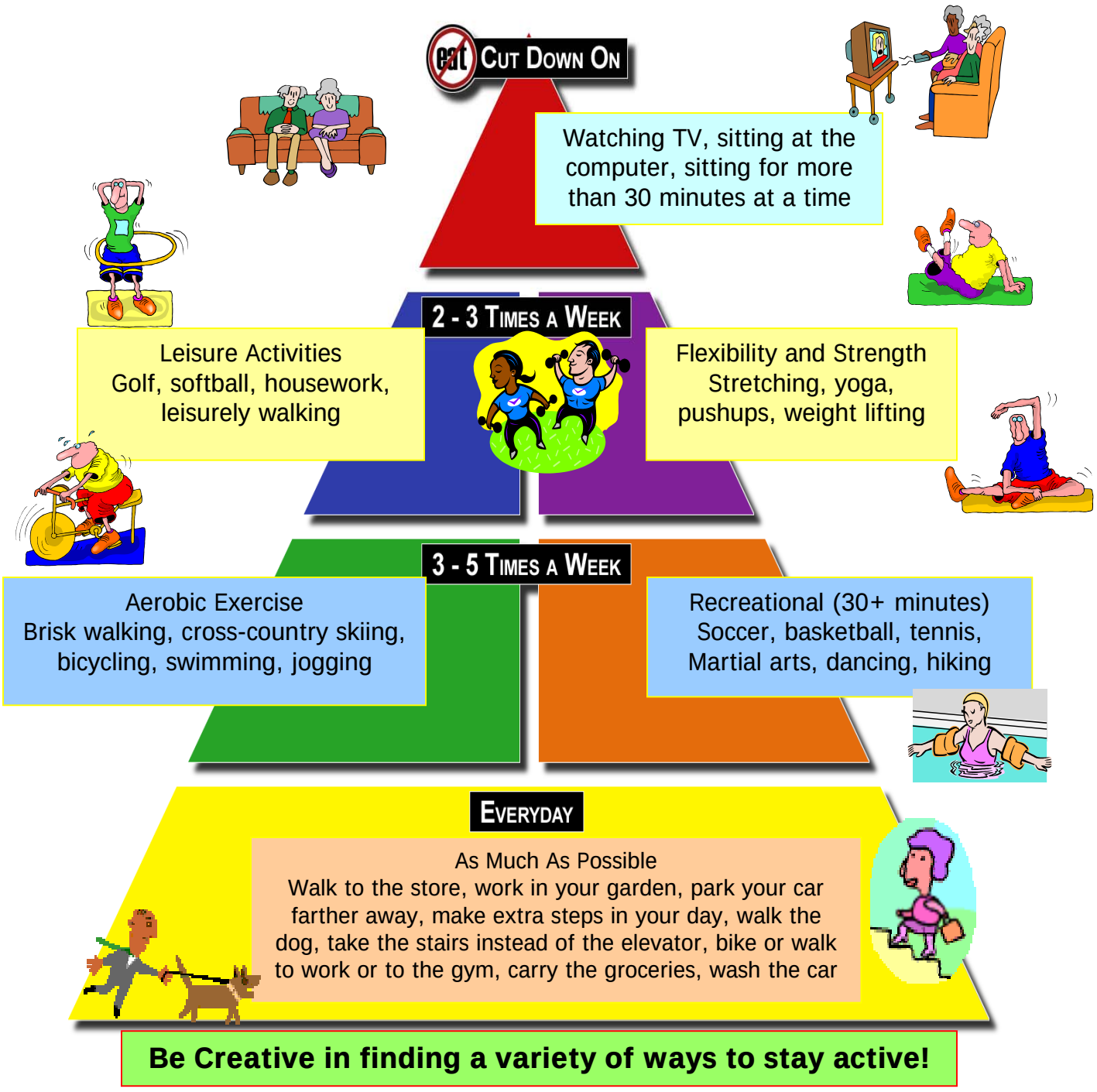


Figure 22. Physical Activity Pyramid

6.7.c Problem solving

Handling barriers

The following are suggested responses to common physical activity barriers reported by patients. Also refer to some of the patient physical activity handouts that discuss barriers.

"I'm too old; it's too late for me. What good will exercise do me now?"

Suggested Response: You will feel better. It's never too late since we know that even modest amounts of regular activity have health benefits at any age. Even if you don't care about living longer, it's good to know that physical activity can also help you live and feel better…. it helps to improve your flexibility and balance which can reduce your risk of falling and getting injured. It can also reduce problems with joints, arthritis, and pain, as well as help prevent many chronic diseases and associated symptoms like diabetes and heart disease.

"I don't have any time for physical activity."

[refer to the following patient handouts: *(P11) Lack of Time For Exercise*, *(P10) If you sit or stand…MOVE!*, *(P23) Activities To Fit Your Lifestyle*]

Suggested Response: It is the total time per day that you are physically active that matters and every little bit helps. Try to grab 10 minutes of exercise whenever you can; spread the time throughout the day. Also try to incorporate more lifestyle exercise activities into your daily routine so that you don't have to try to find large blocks of time to "work-out".

"I've tried it before and exercise is too boring."

[refer to the patient handout *(P06) Exercise Can be Fun*]

Suggested Response: Tell me more about that experience, what about it was boring? How might you make it more interesting? What other types of activities do you like? Some people find physical activity more interesting when they have a friend with them, others like to listen to the radio or music. A variety of activities in different settings also helps to keep things interesting. We can work with you to help design a plan that you can stick with and enjoy.

"Last time I tried exercising I sprained my ankle (hurt my foot, tore a muscle etc.) and I'm scared to try again."

[refer to the patient handout number *(P13) Prevention Tips for Sore Muscles or Cramps*]

Suggested Response: I'm sorry to hear that you were injured when you tried before. While physical activity is certainly important, it does have a small risk of injury associated with it. We can give you some advice for safe physical activity and can help ease you into a program SLOWLY, to hopefully avoid injury. If you do happen to experience an injury, we can work with you to modify your program to allow you to continue some level of physical activity until you are back to your usual self.

"The only thing that helps me to lose weight is dieting…exercise doesn't work for me."

Suggested Response: Good nutrition is certainly an important aspect of any weight management program and we can help you make changes in your diet that you can sustain for life. The *MOVE!* program is a weight management program that emphasizes health and well-being rather than "shedding pounds". There is good evidence to suggest that physical activity has health benefits aside from just losing weight. In addition to burning calories, which helps

promote weight loss, it improves cardiovascular fitness, strengthens bones and joints, and helps to improve insulin function. So even if you don't lose any weight from increasing your physical activity, it will improve your health and keep you from gaining additional weight. Most people who have successfully maintained weight loss use both diet AND exercise. Very few people can successfully maintain weight loss using diet alone.

"I have arthritis and my knees ache all the time and this keeps me from being as active as I would like."

Suggested Response: Yes, I can see why that is difficult. Fortunately, arthritis of the knees is a condition that usually improves with modest weight loss since it takes some of the stress off the joints. The key is to find an activity that doesn't worsen your pain and to work on strengthening the muscles and ligaments around the knee to remove some of the stress on the bones and joints. Water exercise is often helpful for people with arthritis as are other low-impact activities like cycling. We can help you find something that doesn't aggravate your knee too much.

Handling setbacks

Handling setbacks is very important to maintain physical activity and prevent relapse. Veterans who have maintained a regular program of physical activity are to be sincerely applauded for their efforts. However, as with most health behavior changes, setbacks are common. Importance and/or confidence may decrease over time, and goals become harder to achieve. A patient may need an office visit or an extended phone call to reconnect with his/her *MOVE!* team. The following can help to problem-solve.

- Help the veteran define maintainable goals. Revise goals as individual situations arise.
- Remember that social support often drops over time; provide on-going follow-up and encourage veterans to seek out activity partners.
- Help incorporate physical activity into daily routine so it becomes a habit.
- Build in rewards.
- Express empathy and acknowledge the difficulty in maintaining increased physical activity.
- Reassure patients that setbacks are common and can be used as learning experiences.
- Ask the patient to rate importance and confidence for change and compare to prior ratings; explore why these factors may have changed.
- Ask the patient to identify barriers to reaching physical activity goals and ask him to offer potential solutions.
- Connect veterans with VA and community resources.

Help the veteran think up alternative plans for physical activity for the following high-risk scenarios that often lead to a lapse in habits:

- Bad weather
- Change of job or work schedule
- Out-of-town travel or vacation
- Increasing family or work demands on time
- Loss of access to gym, track, pool
- Injury or illness

6.8 Special concerns when working with the obese patients

Obese patients face special challenges in trying to be more physically active. You may need to consider the following special concerns when working with the obese patient:

- Obese patients may not be able to bend, move, or reach in the same way that others can.
- Obese patients may have difficulty getting on/off the floor.
- It may be difficult to find clothes and equipment for exercising.
- Obese people often feel self-conscious when they begin physical activity, especially in a gym setting.

Here are some ideas to help obese patients deal with some of these concerns:

- Start slow and include warm-up and cool down exercises.
- Encourage lifestyle activity that minimizes the use of special clothes or equipment.
- For those who are self-conscious, focus on a home program of activity.
- Incorporate flexibility exercises into a physical activity plan.
- Non-weight-bearing activities, like swimming and water aerobics, put less stress on joints.
- Wear clothes that prevent inner thigh chafing, such as tights or spandex shorts.
- Check the weight rating on gym machines (the number of pounds it can support).
- Use a recumbent bike, these have wide seats and are generally more comfortable.
- For outdoor biking, use a mountain bike. These bikes have wider tires and are heavy. Narrow bike seats can be replaced with wider seats.
- If joining a fitness center, should shop around for one where they feel at ease.

Special concerns when working with the extremely obese

Extremely obese patients (BMI $\geq$ 40) may not be able to start off with weight-bearing activities like walking. Work with patients to find alternative or adapted activities they can perform. Examples include:

- Stationary bicycling
- Chair dancing
- Water activities
- Yoga or pilates adapted for a chair or bed

Help patients adapt activities that they are interested in so that they are more easily performed. This may help with motivation and maintenance. Examples include building in frequent breathing/rest breaks, modifying the range of motion involved, or using a cane or walker for support. As endurance increases, activities can always be made more challenging by increasing the frequency, duration, or intensity.

6.9 Sample physical activity plans

Some patients who are ready to increase their levels of physical activity may want more specific guidance than what the *MOVE!* physical activity patient handouts provide. This section provides some sample aerobic, strength, and flexibility activity plans for patients to meet the needs of veterans who want or need specific physical activity instruction. These plans are designed for

beginners and can be adapted to best meet the needs of the patient. These sample plans are available as patient handouts (P31), (P32), and (P33).

The sample aerobic plan is adapted from "How to Write an Exercise Prescription" by MAJ Robert L. Gauer, MD and LTC Francis G. O'Connor, MD, FACSM, Department of Family Medicine, Uniformed Services University of the Health Sciences. This document is available in its entirety at the following website:
http://www.hooah4health.com/toolbox/exRx/default.htm

The sample strength and flexibility programs are taken from the Exercise: A Guide from the National Institute of Aging. A hardcopy of this guide is provided in the *MOVE!* Toolkit along with an electronic PDF version. Staff and patients can order copies of the guide along with an accompanying video from the following website:
http://www.niapublications.org/exercisebook/exercisebook.asp

6.9.a Sample aerobic programs

Sample Beginner's Aerobic Activity Plan - Patient Handout (P31)

This is a sample 12 week plan to help you meet a goal of 30 minutes of moderate-intensity physical activity on most days of the week.

The best types of activities for this plan are ones that use large muscle groups (arms, trunk, legs), such as walking, dancing, cycling, swimming, or jogging. Remember to begin and end each session with a brief (5-10 minute) warm-up and cool-down period. Review handout (P08) and (P09) for information on how to self-monitor the intensity of your activity (i.e., using the Borg Scale). You can adjust the days of the week on this plan to better fit your schedule.

Weeks 1 through 3 - Getting Started

	Day	Effort/Intensity	Total Duration
Week 1	Sunday	Rest	
	Monday	Borg Level 11-13	10-15 minutes
	Tuesday	Rest	
	Wednesday	Borg Level 11-13	10-15 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	10-15 minutes
	Saturday	Rest	
Week 2	Sunday	Rest	
	Monday	Borg Level 11-13	10-15 minutes
	Tuesday	Rest	
	Wednesday	Borg Level 11-13	10-15 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	10-15 minutes
	Saturday	Rest	
Week 3	Sunday	Rest	
	Monday	Borg Level 11-13	10-15 minutes
	Tuesday	Rest	
	Wednesday	Borg Level 11-13	10-15 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	10-15 minutes
	Saturday	Rest	

Weeks 4 through 7 - Increasing Duration and Frequency

	Day	Effort/Intensity	Total Duration
Week 4 and Week 5	Sunday	Rest	
	Monday	Borg Level 11-13	20-30 minutes
	Tuesday	Rest	
	Wednesday	7-10 minutes at Borg Level 11-13 7-10 minutes at Borg Level 13-16 7-10 minutes at Borg Level 11-13	20-30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	20-30 minutes
	Saturday	Rest	
Week 6	Sunday	Borg Level 14-15	20-30 minutes
	Monday	Borg Level 11-13	20-30 minutes
	Tuesday	Rest	
	Wednesday	7-10 minutes at Borg Level 11-13 7-10 minutes at Borg Level 13-16 7-10 minutes at Borg Level 11-13	20-30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	20-30 minutes
	Saturday	Rest	
Week 7	Sunday	Rest	
	Monday	Borg Level 11-13	20-30 minutes
	Tuesday	Rest	
	Wednesday	7-10 minutes at Borg Level 11-13 7-10 minutes at Borg Level 13-16 7-10 minutes at Borg Level 11-13	20-30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	20-30 minutes
	Saturday	Rest	

Weeks 8 through 12 – Increasing Duration

	Day	Effort/Intensity	Total Duration
Week 8 and Week 9	Sunday	Rest	
	Monday	Borg Level 11-13	30 minutes
	Tuesday	Rest	
	Wednesday	10 minutes at Borg Level 11-13 10 minutes at Borg Level 13-16 10 minutes at Borg Level 11-13	30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	30 minutes
	Saturday	10 minutes at Borg Level 11-13 10 minutes at Borg Level 13-16 10 minutes at Borg Level 11-13	30 minutes
Week 10	Sunday	Rest	
	Monday	Borg Level 10	30 minutes
	Tuesday	Rest	
	Wednesday	Borg Level 14	30 minutes
	Thursday	Rest	
	Friday	Borg Level 10	30 minutes
	Saturday	Borg Level 14	30 minutes
Week 11	Sunday	Rest	
	Monday	Borg Level 11-13	30 minutes
	Tuesday	Rest	
	Wednesday	10 minutes at Borg Level 11-13 10 minutes at Borg Level 13-16 10 minutes at Borg Level 11-13	30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	30 minutes
	Saturday	10 minutes at Borg Level 11-13 10 minutes at Borg Level 13-16 10 minutes at Borg Level 11-13	30 minutes
Week 12	Sunday	Rest	
	Monday	Borg Level 11-13	30 minutes
	Tuesday	Rest	
	Wednesday	10 minutes at Borg Level 11-13 10 minutes at Borg Level 13-16 10 minutes at Borg Level 11-13	30 minutes
	Thursday	Rest	
	Friday	Borg Level 11-13	30 minutes
	Saturday	Rest	

Week 13 and beyond - Maintenance

- 30 minutes of aerobic activities
- 5-6 times/week
- at Borg Level 13 intensity

For even more help with controlling your weight, consider further increasing the duration, frequency, and/or intensity of your activity.

6.9 b Sample strength programs

Sample Beginner's Strength Activity Plan - Patient Handout (P32)

About strength exercise

To do most of the following strength exercises, you need to lift or push weights (or your own body weight), and gradually increase the amount of weight you use. You can use the hand and ankle weights sold in sporting-goods stores, or you can use things like emptied milk or water jugs filled with sand or water, or socks filled with beans and tied shut at the ends.

There are many alternatives to the exercises shown here. For example you can buy a resistance band (it looks like a giant rubber band, and stretching it helps builds muscle) at a sporting-goods store to do other types of strength exercises. You can also use the special strength-training equipment at a gym or fitness center.

How much, how often

- Do strength exercises for all of your major muscle groups at least twice a week, but no more than 3 times per week. Don't do strength exercises of the same muscle group on any 2 days in a row.
- Depending on your condition, you might need to start out using as little as 1 or 2 pounds of weight, or no weight at all. Sometimes, the weight of your arms or legs alone is enough to get you started.
- Use a minimum of weight the first week, then gradually add weight. Starting out with weights that are too heavy can cause injuries.
- Gradually add a challenging amount of weight in order to benefit from strength exercises. If you don't challenge your muscles, you won't benefit from strength exercises.

How to do strength exercises

- Do 8-15 repetitions in a row. Wait a minute, then do another "set" of 8-15 repetitions of the same exercise.
- Take 3 seconds to lift or push a weight into place; hold the position for 1 second, and take another 3 seconds to lower the weight. Don't let the weight drop or let your limbs fall in an uncontrolled way; lowering them slowly is very important.
- It should feel somewhere between hard and very hard (15 to 17 on the Borg Scale, review patient handout (P08) for more information on how to self-monitor the intensity of your activity) for you to lift or push the weight or your limb. It should not feel very, very hard. If you can't lift or push at least 8 times in a row, it's too heavy for you. Reduce the amount of weight or lift your limb a lower amount. If you can lift more than 15 times in a row without much difficulty, than it's too light for you. You can try increasing the amount of weight or the height to which you are lifting your limb to make the activity more difficult.
- Stretch after strength exercises, as this is when your muscles are warmed up. If you stretch before strength exercises, be sure to warm up your muscles first by light walking and arm pumping.

Safety

- Don't hold your breath or strain during strength exercises. Breath out as you lift or push, and breath in as you relax; this may not feel natural at first.
- If you have had your hip or knee joint replaced, check with your doctor before doing the lower body exercises.
- Avoid jerking or thrusting weights into position or "locking" the joints in your arms and legs in a tightly straightened position. This can cause injuries. Use smooth, steady movements.
- Muscle soreness lasting up to a few days and slight fatigue are normal after muscle-building exercises, but exhaustion, sore joints, and unpleasant muscle pulling are not. The latter symptoms mean you are overdoing it.
- None of the exercises you do should cause pain. The range within which you move your arms and legs should never hurt.

Progressing

- Gradually increasing the amount of weight you use is crucial for building strength.
- When you are able to lift a weight between 8 to 15 times, increase the amount of weight you use at your next session
- Here is an example of how to progress gradually:

Start out with a weight that you can lift only 8 times. Keep using that weight until you become strong enough to lift 12 to 15 times. Add more weight so that, again, you can lift it only 8 times. Use this weight until you can lift it 12 to 15 times, then add more weight. Keep repeating.

Sample Schedule

Perform the following exercises in the chart below in order at the recommended frequency. Detailed instructions for each exercise are provided at the end of this handout.

Remember the sequence for each repetition of an exercise:

LIFT to a count of 3…

PAUSE to a count of 1

LOWER to a count of 3

- Decrease the weight or lower how far you are lifting your limb or body if you cannot do at least 8 repetitions in row
- Increase the weight, or raise how far you are lifting your limb or body if you can easily do more than 15 repetitions in a row

For this program, proper form is more important than quantity or speed. Make sure you do each exercise safely and properly with the full range of motion.

Strength and Balance Exercises	# of repetitions per set	# of sets per session	# of sessions per week
Arm Raise	8-15	2	2-3
Chair Stand	8-15	2	2-3
Biceps Curl	8-15 per side	2 per side	2-3
Plantar Flexion	8-15	2	2-3
Triceps Extension	8-15 per side	2 per side	2-3
Alternative Dip	8-15	2	2-3
Knee Flexion	8-15 per side	2 per side	2-3
Hip Flexion	8-15 per side	2 per side	2-3
Shoulder Flexion	8-15	2	2-3
Knee Extension	8-15 per side	2 per side	2-3
Hip Extension	8-15 per side	2 per side	2-3
Side Leg Raise	8-15 per side	2 per side	2-3

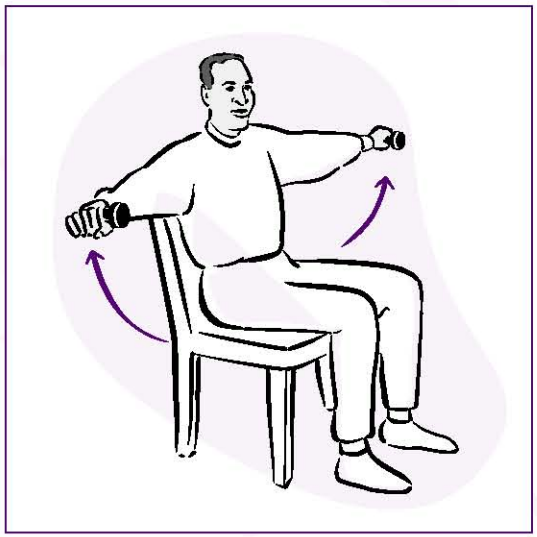
Finding the right intensity

As you stick with the program, the exercises will become too easy and you will need to increase your efforts to continue gaining strength. It is important to find the right balance between being careful when exercising to prevent injury and always progressing to increase strength. The table below will help you find the right intensity for your workout.

Exercise Intensity Indicator* Ask yourself these questions after each exercise
Were you able to complete 2 sets of 8 repetitions in good form?
No → Reduce the weight so you can lift 8 times in good form; then repeat for a 2nd set. → For exercises that don't use weights, decrease height to which you are raising your limb or body. **Yes** → Please continue to the next question**.**
After completing 8-15 repetitions, do you need to rest because the weight is too heavy to complete more repetitions in good form?
Yes→ You are working at the right intensity and should not increase the weight. **No**→ You probably need to work at a higher intensity. Please continue to the next questions to determine how to safely increase the intensity.
Could you have done a <u>few</u> more than 15 repetitions in good form without a break?
Yes→ You feel that you can do only a few more repetitions-but not the entire next set of 8-15 without a break. At your next workout, do the first set of repetitions with the current weight you have been using. Then do the second set with a slightly heavier weight. To increase the intensity of exercises that do not use weights, hold for a slightly longer count or lift limb to a higher level.
Could you have done the <u>entire</u> 2nd set of 15 repetitions in good form without a break?
Yes → Use heavier weights for both sets of repetitions the next time you workout. For exercises without weight, hold each repetition for a slightly longer count. **The usual recommended count is: "LIFT One-Two-Three" "PAUSE One" "LOWER One-Two-Three"** **To increase intensity try: "LIFT One-Two-Three" "Pause One-Two-Three" "LOWER One-Two-Three-Four"**

**Excerpted and Slightly Adapted with permission from: Growing Stronger: Strength Training for Older Adults by RA Sequin et al. Published by CDC and Tufts University*

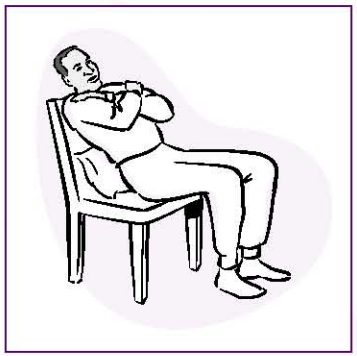
Examples of Strength Exercises

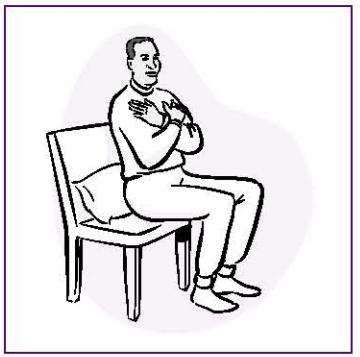


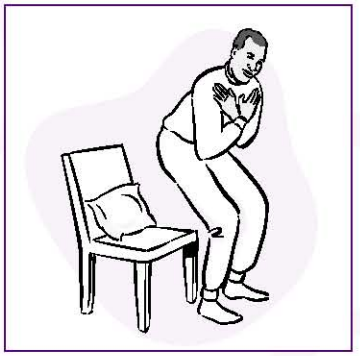
Arm Raise

Strengthens shoulder muscles.

1. Sit in armless chair with your back supported by back of chair.
2. Keep feet flat on floor even with your shoulders.
3. Hold hand weights straight down at your sides, with palms facing inward.
4. Raise both arms to side, shoulder height.
5. Hold the position for 1 second.
6. Slowly lower arms to sides. Pause.
7. Repeat 8 to 15 times.
8. Rest; then do another set of 8 to 15 repetitions.





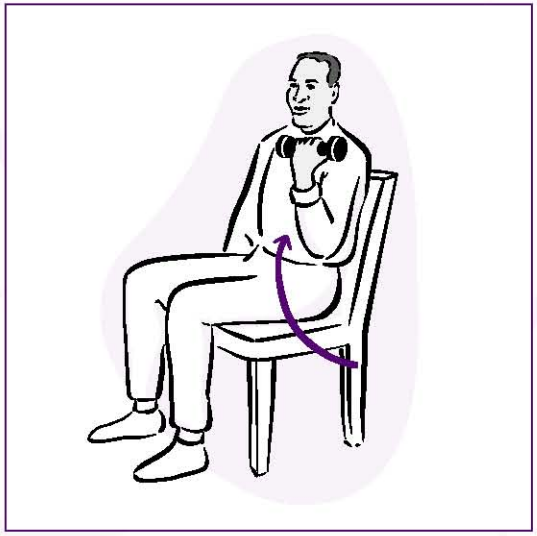


Chair Stand

Strengthens muscles in abdomen and thighs. Your goal is to do this exercise without using your hands as you become stronger.

1. Place pillows on the back of chair.
2. Sit toward front of chair, knees bent, feet flat on floor.
3. Lean back on pillows in half-reclining position. Keep your back and shoulders straight throughout exercise.
4. Raise upper body forward until sitting upright, using hands as little as possible (or not at all, if you can). Your back should no longer lean against pillows.
5. Slowly stand up, using hands as little as possible.
6. Slowly sit back down. Pause.
7. Repeat 8 to 15 times.
8. Rest; then do another set of 8 to 15 repetitions.

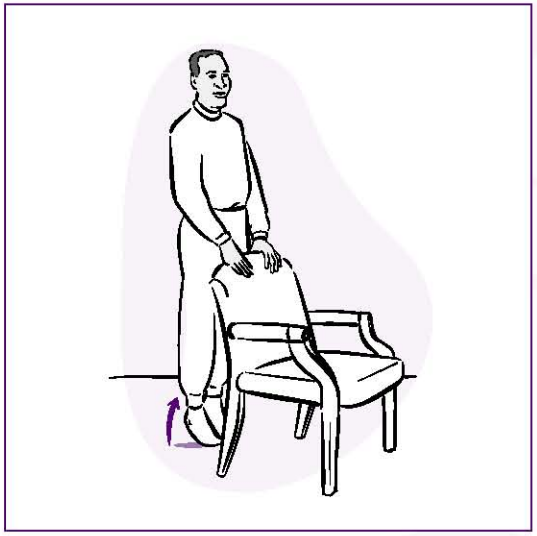
From: Exercise: A Guide from the National Institute of Aging



Biceps Curl

Strengthens upper-arm muscles.

1. Sit in armless chair with your back supported by back of chair.
2. Keep feet flat on floor even with your shoulders.
3. Hold hand weights straight down at your sides, with palms facing inward.
4. Slowly bend one elbow, lifting weight toward chest. (Rotate palm to face shoulder while lifting weight.)
5. Hold position for 1 second.
6. Slowly lower arm to starting position. Pause.
7. Repeat with other arm.
8. Alternate arms until you have done 8 to 15 repetitions with each arm.
9. Rest; then do another set of 8 to 15 alternating repetitions.



Plantar Flexion

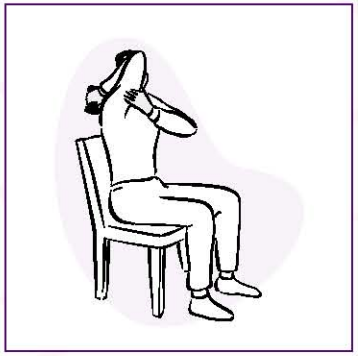
Strengthens ankle and calf muscles. Use ankle weights, if you are ready.

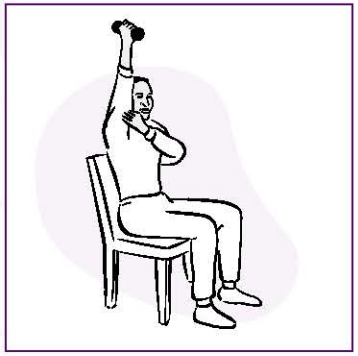
1. Stand straight, feet flat on floor, holding onto a table or chair for balance.
2. Slowly stand on tiptoe, as high as possible.
3. Hold position for 1 second.
4. Slowly lower heels all the way back down. Pause.
5. Do the exercise 8 to 15 times.
6. Rest; then do another set of 8 to 15 repetitions.

Variation:

As you become stronger, do the exercise standing on one leg only, alternating legs for a total of 8 to 15 times on each leg. Rest; then do another set of 8 to 15 alternating repetitions.

From: Exercise: A Guide from the National Institute of Aging



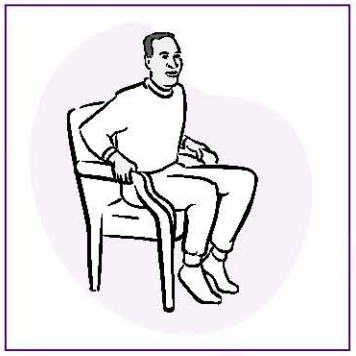


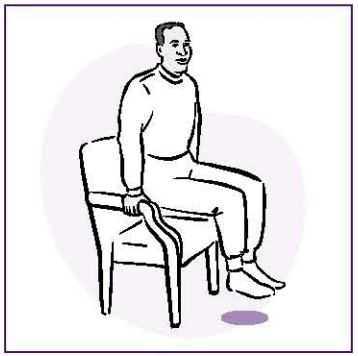
Triceps Extension

(If your shoulders aren't flexible enough to do this exercise, see alternative "Dip" exercise.)

Strengthens muscles in back of upper arm. Keep supporting your arm with your hand throughout the exercise.

1. **Sit in chair with your back supported by back of chair.**
2. **Keep feet flat on floor even with shoulders.**
3. **Hold a weight in one hand. Raise that arm straight toward ceiling, palm facing in.**
4. **Support this arm, below elbow, with other hand.**
5. **Slowly bend raised arm at elbow, bringing hand weight toward same shoulder.**
6. **Slowly straighten arm toward ceiling.**
7. **Hold position for 1 second.**
8. **Slowly bend arm toward shoulder again. Pause.**
9. **Repeat the bending and straightening until you have done the exercise 8 to 15 times.**
10. **Repeat 8 to 15 times with your other arm.**
11. **Rest; then do another set of 8 to 15 alternating repetitions.**





Alternative "Dip" Exercise For Back of Upper Arm

This pushing motion will strengthen your arm muscles even if you aren't yet able to lift yourself up off of the chair. Don't use your legs or feet for assistance, or use them as little as possible.

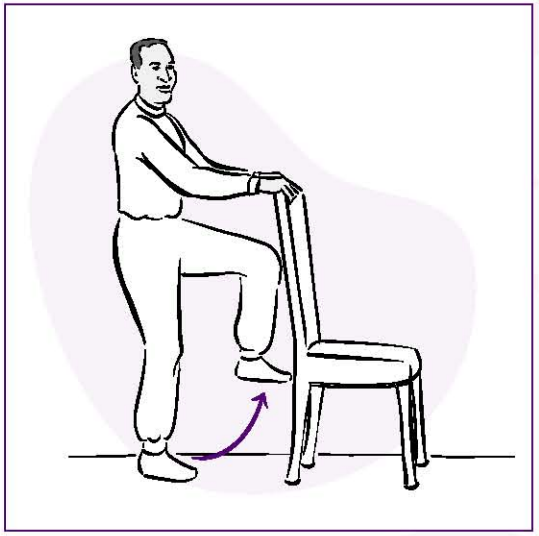
1. **Sit in chair with armrests.**
2. **Lean slightly forward, keep your back and shoulders straight.**
3. **Grasp arms of chair. Your hands should be level with trunk of body or slightly farther forward.**
4. **Tuck feet slightly under chair, heels off the ground, weight on toes and balls of feet.**
5. **Slowly push body off of chair using arms, not legs.**
6. **Slowly lower back down to starting position. Pause.**
7. **Repeat 8 to 15 times.**
8. **Rest; then do another set of 8 to 15 repetitions.**

From: Exercise: A Guide from the National Institute of Aging

Knee Flexion

Strengthens muscles in back of thigh. Use ankle weights, if you are ready.

1. **Stand straight holding onto a table or chair for balance.**
2. **Slowly bend knee as far as possible. Don't move your upper leg at all; bend your knee only.**
3. **Hold position for 1 second.**
4. **Slowly lower foot all the way back down. Pause.**
5. **Repeat with other leg.**
6. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
7. **Rest; then do another set of 8 to 15 alternating repetitions.**



Hip Flexion

Strengthens thigh and hip muscles. Use ankle weights, if you are ready.

1. **Stand straight to the side or behind a chair or table, holding on for balance.**
2. **Slowly bend one knee toward chest, without bending waist or hips.**
3. **Hold position for 1 second.**
4. **Slowly lower leg all the way down. Pause.**
5. **Repeat with other leg.**
6. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
7. **Rest; then do another set of 8 to 15 alternating repetitions.**

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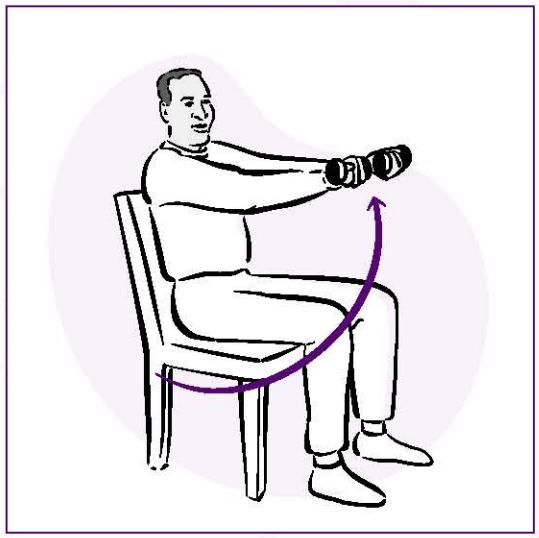

Shoulder Flexion

Strengthens shoulder muscles.

1. **Sit in armless chair with your back supported by back of chair.**
2. **Keep feet flat on floor even with your shoulders.**
3. **Hold hand weights straight down at your sides, with palms facing inward.**
4. **Raise both arms in front of you (keep them straight and rotate so palms face upward) to shoulder height.**
5. **Hold position for 1 second.**
6. **Slowly lower arms to sides. Pause.**
7. **Repeat 8 to 15 times.**
8. **Rest; then do another set of 8 to 15 repetitions.**

Knee Extension

Strengthens muscles in front of thigh and shin.
Use ankle weights, if you are ready.

1. **Sit in chair. Only the balls of your feet and your toes should rest on the floor. Put rolled towel under knees, if needed, to lift your feet. Rest your hands on your thighs or on the sides of the chair.**
2. **Slowly extend one leg in front of you as straight as possible.**
3. **Flex foot to point toes toward head.**
4. **Hold position for 1 to 2 seconds.**
5. **Slowly lower leg back down. Pause.**
6. **Repeat with other leg.**
7. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
8. **Rest; then do another set of 8 to 15 alternating repetitions.**

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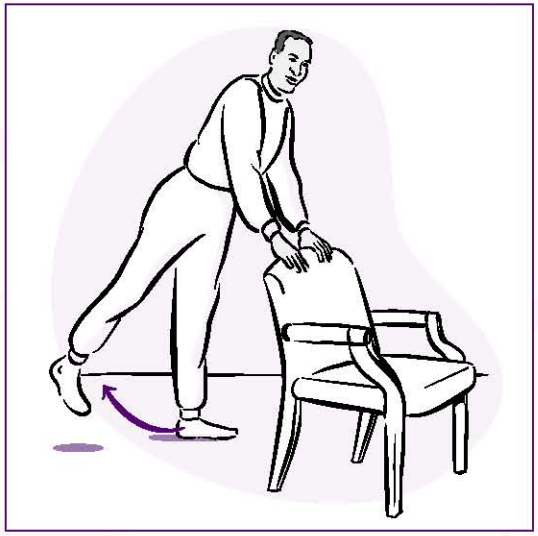

Hip Extension

Strengthens buttock and lower-back muscles. Use ankle weights, if you are ready.

1. **Stand 12 to 18 inches from a table or chair, feet slightly apart.**
2. **Bend forward at hips at about 45-degree angle; hold onto a table or chair for balance.**
3. **Slowly lift one leg straight backwards without bending your knee, pointing your toes, or bending your upper body any farther forward.**
4. **Hold position for 1 second.**
5. **Slowly lower leg. Pause.**
6. **Repeat with other leg.**
7. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
8. **Rest; then do another set of 8 to 15 alternating repetitions.**

Side Leg Raise

Strengthens muscles at sides of hips and thighs. Use ankle weights, if you are ready.

1. **Stand straight, directly behind table or chair, feet slightly apart.**
2. **Hold onto a table or chair for balance.**
3. **Slowly lift one leg 6-12 inches out to side. Keep your back and both legs straight. Don't point your toes outward; keep them facing forward.**
4. **Hold position for 1 second.**
5. **Slowly lower leg. Pause.**
6. **Repeat with other leg.**
7. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
8. **Rest; then do another set of 8 to 15 alternating repetitions.**

How to Improve Your Balance

Each year, U.S. hospitals have 300,000 admissions for broken hips, and falling is often the cause of those fractures. Balance exercises can help you stay independent by helping you avoid the disability — often permanent — that may result from falling.

As you will see, there is a lot of overlap between strength and balance exercises; very often, one exercise serves both purposes.

About Strength/ Balance Exercises

Any of the lower-body exercises for strength shown in the previous strength section also are balance exercises. They include plantar flexion, hip flexion, hip extension, knee flexion, and side leg raise. Just do your regularly scheduled strength exercises, and they will improve your balance at the same time. Also do the knee-extension exercise, which helps you keep your balance by increasing muscle strength in your upper thighs.

Safety

- Don't do more than your regularly scheduled strength-exercise sessions to incorporate these balance modifications.
- Remember that doing strength exercises too often can do more harm than good.
- Simply do your strength exercises, and incorporate these balance techniques as you progress.

Progressing

These exercises can improve your balance even more if you add the following modifications: Note that these exercises instruct you to hold onto a table or chair for balance. Hold onto the table with only one hand. As you progress, try holding on with only one fingertip. Next, try these exercises without holding on at all. If you are very steady on your feet, move on to doing the exercises using no hands, with your eyes closed. Have someone stand close by if you are unsteady

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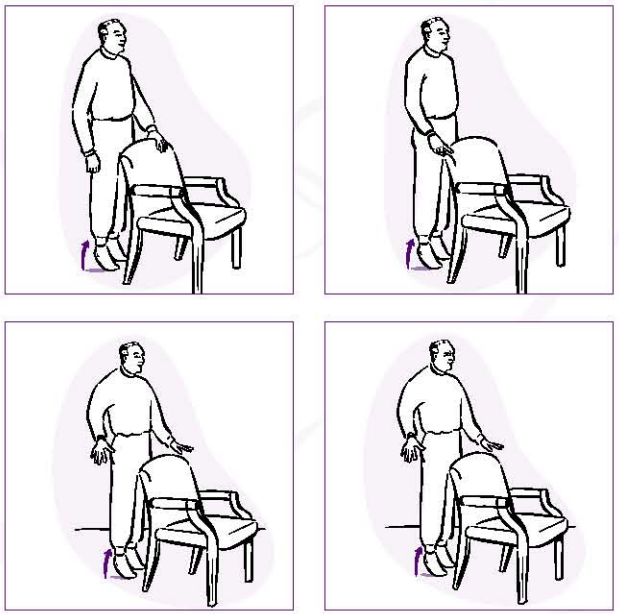
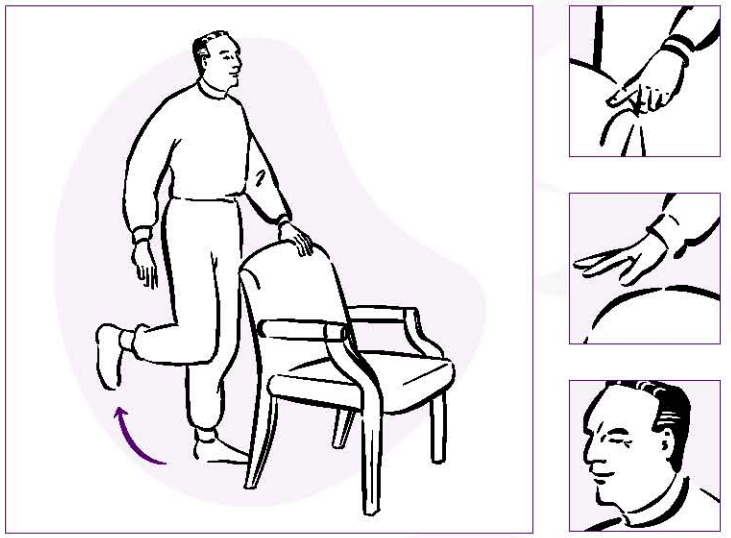
Examples of Strength/ Balance Exercises



Plantar Flexion

Plantar flexion is already included in your strength exercises. When doing your strength exercises, add these modifications to plantar flexion as you progress: Hold table with one hand, then one fingertip, then no hands; then do exercise with eyes closed, if steady.

1. **Stand straight; hold onto a table or chair for balance.**
2. **Slowly stand on tip toe, as high as possible.**
3. **Hold position for 1 second.**
4. **Slowly lower heels all the way back down. Pause.**
5. **Repeat 8 to 15 times.**
6. **Rest; then do another set of 8 to 15 repetitions.**
7. **Add modifications as you progress.**



Knee Flexion

Do knee flexion as part of your regularly scheduled strength exercises, and add these modifications as you progress: Hold table with one hand, then one fingertip, then no hands; then do exercise with eyes closed, if steady.

1. **Stand straight; hold onto a table or chair for balance.**
2. **Slowly bend knee as far as possible, so foot lifts up behind you.**
3. **Hold position for 1 second.**
4. **Slowly lower foot all the way back down. Pause.**
5. **Repeat with other leg.**
6. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
7. **Rest; then do another set of 8 to 15 alternating repetitions.**
8. **Add modifications as you progress.**

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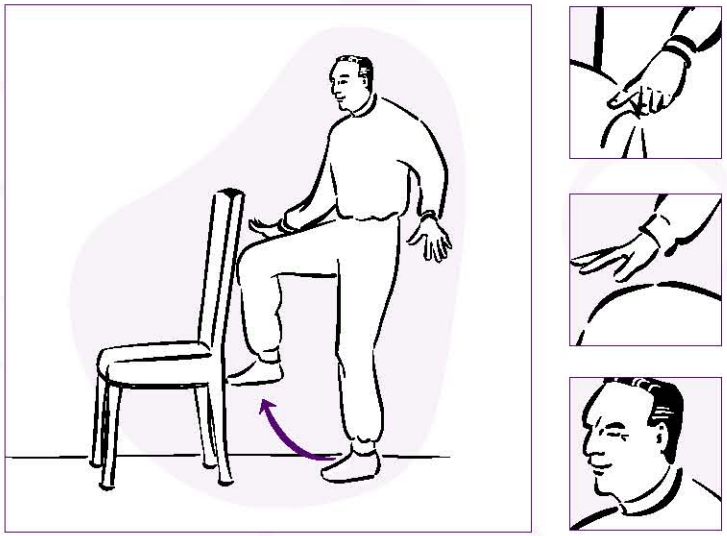
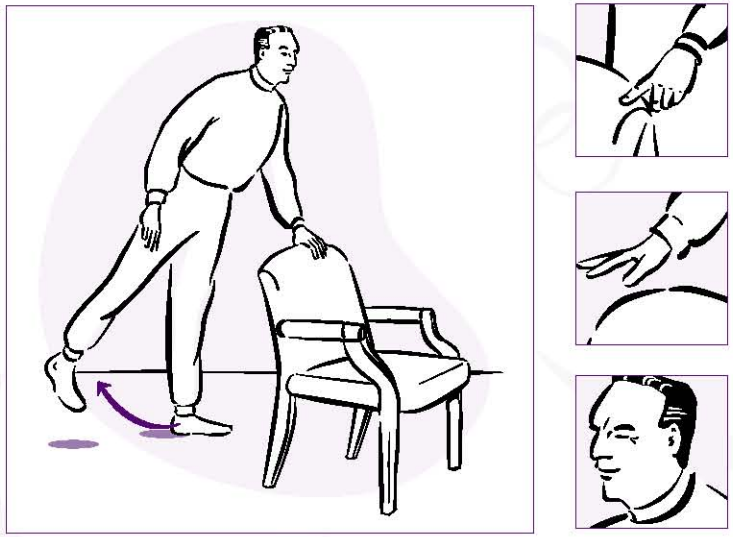


Hip Flexion

Do hip flexion as part of your regularly scheduled strength exercises, and add these modifications as you progress: Hold table with one hand, then one fingertip, then no hands; then do exercise with eyes closed, if steady.

1. **Stand straight; hold onto a table or chair for balance.**
2. **Slowly bend one knee toward chest, without bending waist or hips.**
3. **Hold position for 1 second.**
4. **Slowly lower leg all the way down. Pause.**
5. **Repeat with other leg.**
6. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
7. **Rest; then do another set of 8 to 15 alternating repetitions.**
8. **Add modifications as you progress.**



Hip Extension

Do hip extension as part of your regularly scheduled strength exercises, and add these modifications as you progress: Hold table with one hand, then one fingertip, then no hands; then do exercise with eyes closed, if steady.

1. **Stand 12 to 18 inches from a table or chair, feet slightly apart.**
2. **Bend forward at hips at about 45-degree angle; hold onto a table or chair for balance.**
3. **Slowly lift one leg straight backwards without bending your knee, pointing your toes, or bending your upper body any farther forward.**
4. **Hold position for 1 second.**
5. **Slowly lower leg. Pause.**
6. **Repeat with other leg.**
7. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
8. **Rest; then do another set of 8 to 15 alternating repetitions.**
9. **Add modifications as you progress.**

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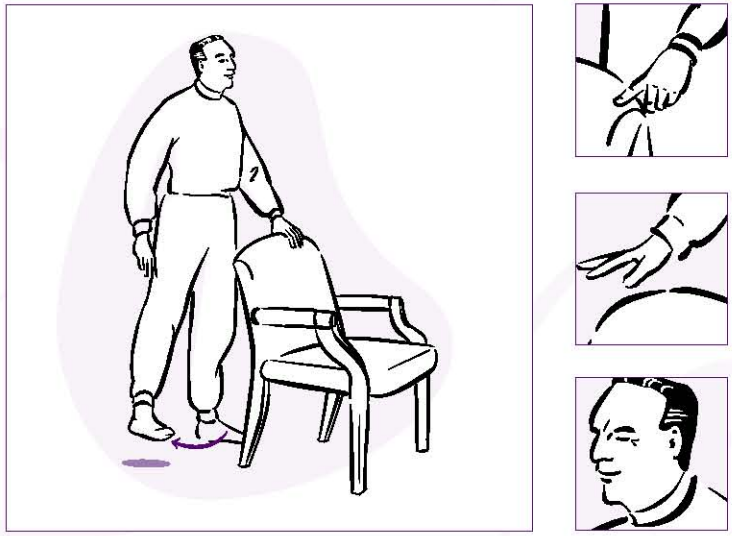
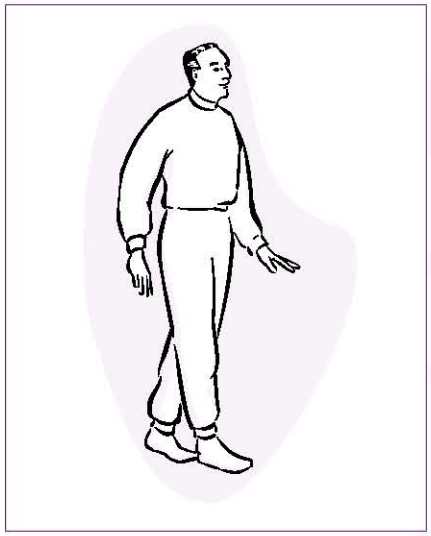


Side Leg Raise

Do leg raise as part of your regularly scheduled strength exercises, and add these modifications as you progress: Hold table with one hand, then one fingertip, then no hands; then do exercise with eyes closed, if steady.

1. **Stand straight, directly behind table or chair, feet slightly apart.**
2. **Hold onto table or chair for balance.**
3. **Slowly lift one leg to side 6-12 inches out to side. Keep your back and both legs straight. Don't point your toes outward; keep them facing forward.**
4. **Hold position for 1 second.**
5. **Slowly lower leg all the way down. Pause.**
6. **Repeat with other leg.**
7. **Alternate legs until you have done 8 to 15 repetitions with each leg.**
8. **Rest; then do another set of 8 to 15 alternating repetitions.**
9. **Add modifications as you progress.**



Walk heel-to-toe.

"Anytime, Anywhere" Balance Exercises

These types of exercises also improve your balance. You can do them almost anytime, anywhere, and as often as you like, as long as you have something sturdy nearby to hold onto if you become unsteady.

Examples:

- **Walk heel-to-toe. Position your heel just in front of the toes of the opposite foot each time you take a step. Your heel and toes should touch or almost touch. (See illustration.)**
- **Stand on one foot (for example, while waiting in line at the grocery store or at the bus stop). Alternate feet.**
- **Stand up and sit down without using your hands.**

6.9.c Sample flexibility program

Sample Beginner's Flexibility Plan - Patient Handout (P33)

Stretching exercises give you more freedom of movement to do the things you need to do and the things you like to do. Stretching exercises alone can improve your flexibility, but they will not improve your endurance or strength.

How Much, How Often

- Stretch after you do your regularly scheduled strength and aerobic activities. This should work out to stretching on most if not all days of the week.
- If you can't do endurance or strength exercises for some reason, and stretching exercises are the only kind you are able to do, do them at least 3 times a week, for at least 20 minutes each session.
- Do each stretching exercise 3 to 5 times at each session. Slowly stretch into the desired position, as far as possible without pain, and hold the stretch for 10 to 30 seconds. Relax, then repeat, trying to stretch farther.

Safety

- If you have had a hip or knee replacement, check with your surgeon before doing lower body exercises.
- Always warm up before stretching exercises (do them after endurance or strength exercises, for example; or, if you are doing only stretching exercises on a particular day, do a little bit of easy walking and arm-pumping first).
- Stretching should never cause pain, especially joint pain. If it does, you are stretching too far and you need to reduce the stretch so that it doesn't hurt. Mild discomfort or a mild pulling sensation is normal. Never "bounce" into a stretch; make slow, steady movements instead. Jerking into position can cause muscles to tighten, possibly resulting in injury.
- Avoid "locking" your joints into place when you straighten them during stretches. Your arms and legs should be straight when you stretch them, but don't lock them in a tightly straight position. You should always have a very small amount of bending in your joints while stretching.
- Some of the exercises require you to lie on the floor. If you are afraid to lie on the floor to exercise because you think you won't be able to get back up, consider using a buddy to exercise with who is able to help you. Alternatively, keep a chair nearby that you can use for support to help lift yourself from the ground slowly.

Getting Started

Stretching exercises are generally performed at a low intensity. You can progress in your stretching exercises; the way to know how to limit yourself is that stretching should never hurt. It may feel slightly uncomfortable, but not painful. Push yourself to stretch farther, but not so far that it hurts.

Perform the stretches listed in the table in order at the recommended frequency.
Detailed instructions for each stretch are provided on the pages that follow.

Flexibility Exercise/Stretch	# of repetitions per set	# of sets per session	# of sessions per week*
Hamstrings	3-5 per side	1	After every aerobic or strength session
Alternative Hamstrings	3-5	1	After every aerobic or strength session
Calves	3-5 per side	1	After every aerobic or strength session
Ankles	3-5	1	After every aerobic or strength session
Triceps	3-5 per side	1	After every aerobic or strength session
Wrists	3-5	1	After every aerobic or strength session
Quadriceps	3-5 per side	1	After every aerobic or strength session
Double Hip Rotation	3-5 per side	1	After every aerobic or strength session
Single Hip Rotation	3-5 per side	1	After every aerobic or strength session
Shoulder Rotation	3-5	1	After every aerobic or strength session
Neck Rotation	3-5 per side	1	After every aerobic or strength session

*If you are not currently doing aerobic or strength activities, do flexibility and stretching at least 3 times per week for at least 20 minutes per session.

How to Improve Your Flexibility

Stretching exercises give you freedom of movement to do the things you need to do and the things you like to do. Stretching exercises alone can improve your flexibility, but they will not improve your endurance or strength.

How Much, How Often

- **Stretch after you do your regularly scheduled strength and endurance exercises.**
- If you can't do endurance or strength exercises for some reason, and stretching exercises are the only kind you are able to do, do them at least 3 times a week, for at least 20 minutes each session.
- Do each s**tretching exercise 3 to 5 times** at each session.
- Slowly stretch into the desired position and **hold the stretch for 10 to 30 seconds**. Relax, then repeat, trying to stretch farther.

Safety

- If you have had a hip replacement, check with your surgeon before doing lower body exercises.
- If you have had a hip replacement, don't cross your legs or bend your hips past a 90-degree angle.
- Always warm up before stretching exercises (do them after endurance or strength exercises, for example; or, if you are doing only stretching exercises on a particular day, do a little bit of easy walking and arm-pumping first). Stretching your muscles before they are warmed up may result in injury.
- Stretching should never cause pain, especially joint pain. If it does, you are stretching too far and you need to reduce the stretch so that it doesn't hurt.
- Mild discomfort or a mild pulling sensation is normal.
- Never "bounce" into a stretch; make slow, steady movements instead. Jerking into position can cause muscles to tighten, possibly resulting in injury.
- Avoid "locking" your joints into place when you straighten them during stretches. Your arms and legs should be straight when you stretch them, but don't lock them in a tightly straight position. You should always have a very small amount of bending in your joints while stretching.

Progressing

You can progress in your stretching exercises; the way to know how to limit yourself is that stretching should never hurt. It may feel slightly uncomfortable, but not painful. Push yourself to stretch farther, but not so far that it hurts.

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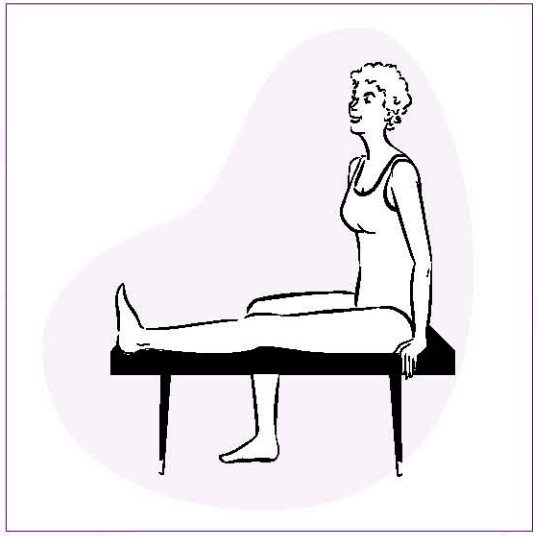
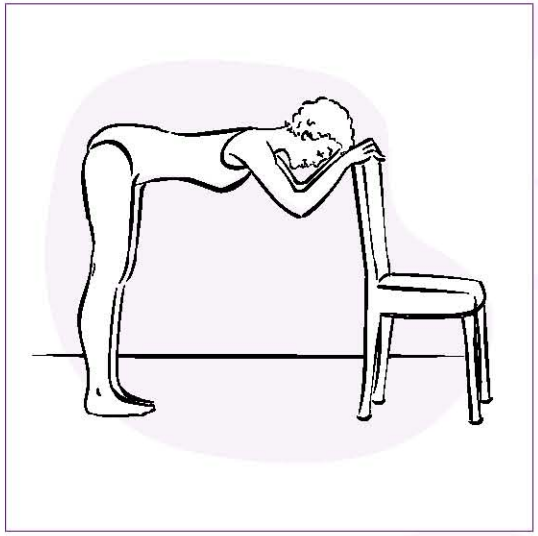
Examples of Stretching Exercises



Hamstrings

Stretches muscles in the back of the thigh.

1. **Sit sideways on bench or other hard surface (such as two chairs placed side by side).**
2. **Keep one leg stretched out on bench, straight, toes pointing up.**
3. **Keep other leg off of bench, with foot flat on floor.**
4. **Straighten back.**
5. **If you feel a stretch at this point, hold the position for 10 to 30 seconds.**
6. **If you don't feel a stretch, lean forward from hips (not waist) until you feel stretching in leg on bench, keeping back and shoulders straight. Omit this step if you have had a hip replacement, unless surgeon/therapist approves.**
7. **Hold position for 10 to 30 seconds.**
8. **Repeat with other leg.**
9. **Repeat 3 to 5 times on each side.**



Alternative Hamstrings Stretch

Stretches muscles in the back of the thigh.

1. **Stand behind chair, holding the back of it with both hands.**
2. **Bend forward from the hips (not waist), keeping back and shoulders straight at all times.**
3. **When upper body is parallel to floor, hold position for 10 to 30 seconds. You should feel a stretch in the backs of your thighs.**
4. **Repeat 3 to 5 times.**

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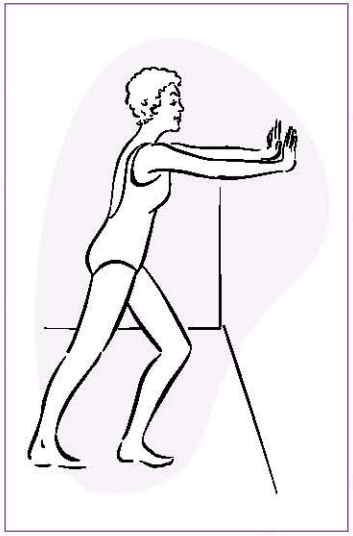
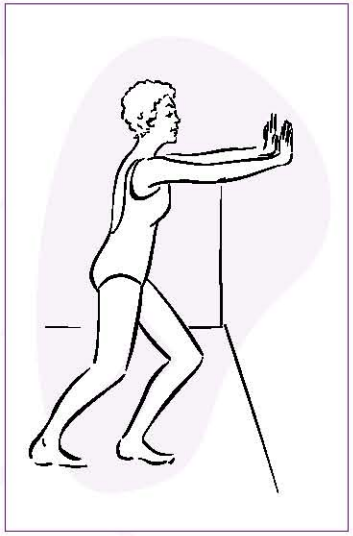
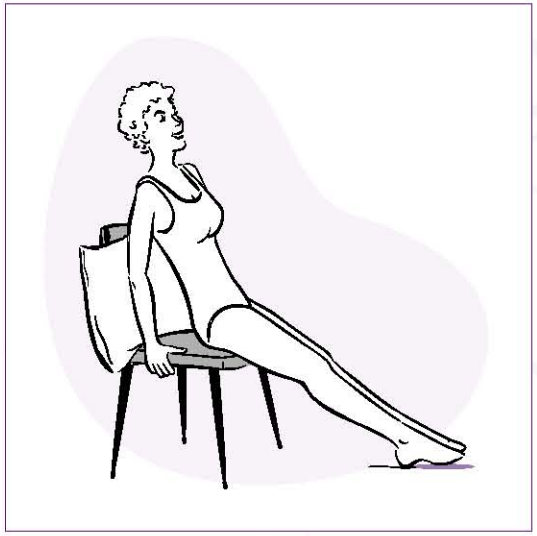




Calves

Stretches lower leg muscles in two ways: with knee straight and knee bent.

1. **Stand with hands against wall, arms outstretched and elbows straight.**
2. **Keeping your left knee slightly bent, toes of right foot slightly turned inward, step back 1-2 feet with right leg, heel, and foot flat on floor. You should feel a stretch in your calf muscle, but you shouldn't feel uncomfortable. If you don't feel a stretch, move your foot farther back until you do.**
3. **Hold position for 10 to 30 seconds.**
4. **Bend knee of right leg, keep heel and foot flat on floor.**
5. **Hold position for another 10 to 30 seconds.**
6. **Repeat with left leg.**
7. **Repeat 3 to 5 times for each leg.**



Ankles

Stretches front ankle muscles.

1. **Remove your shoes. Sit toward the front edge of a chair and lean back, using pillows to support your back.**
2. **Stretch legs out in front of you.**
3. **With your heels still on the floor, bend ankles to point feet toward you.**
4. **Bend ankles to point feet away from you.**
5. **If you don't feel the stretch, repeat with your feet slightly off the floor.**
6. **Hold the position for 1 second.**
7. **Repeat 3 to 5 times.**

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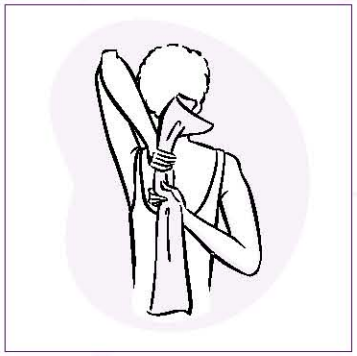
Stretching Exercises



Triceps Stretch

Stretches muscles in back of upper arm.

1. **Hold one end of a towel in right hand.**
2. **Raise and bend right arm to drape towel down back. Keep your right arm in this position, and continue holding onto the towel.**
3. **Reach behind your lower back and grasp bottom end of towel with left hand.**
4. **Climb left hand progressively higher up towel, which also pulls your right arm down. Continue until your hands touch, or as close to that as you can comfortably go.**
5. **Reverse positions.**
6. **Repeat each position 3 to 5 times.**

Wrist Stretch

Stretches wrist muscles.

1. **Place hands together, in praying position.**
2. **Slowly raise elbows so arms are parallel to floor, keeping hands flat against each other.**
3. **Hold position for 10 to 30 seconds.**
4. **Repeat 3 to 5 times.**

From: Exercise: A Guide from the National Institute of Aging

About Floor Exercises

Most of the remaining exercises are done on the floor and stretch some very important muscle groups. If you are afraid to lie on the floor to exercise because you think you won't be able to get back up, consider using the buddy system to do these. Find a buddy who will be able to help you.

Knowing the right way to get into a lying position on the floor and to get back up also may be helpful. If you have had a hip replacement, check with your surgeon before using the following method. If you have osteoporosis, check with your doctor first.

To get into a lying position:

- Stand next to a very sturdy chair that won't tip over (put chair against wall for support if you need to).
- Put your hands on the seat of the chair.
- Lower yourself down on one knee.
- Bring the other knee down.
- Put your left hand on the floor and lean on it as you bring your left hip to the floor.
- Your weight is now on your left hip.
- Straighten your legs out.
- Lie on your left side.
- Roll onto your back.
- Note: You don't have to use your left side. You can use your right side, if you prefer.

To get up from a lying position:

- Roll onto your left side.
- Use your right hand, placed on the floor at about the level of your ribs, to push your shoulders off the floor.
- Your weight is on your left hip.
- Roll forward, onto your knees, leaning on your hands for support.
- Lean your hands on the seat of the chair you used to lie down.
- Lift one of your knees so that one leg is bent, foot flat on the floor.
- Leaning your hands on the seat of the chair for support, rise from this position.
- Note: You don't have to use your left side; you can reverse positions, if you prefer.

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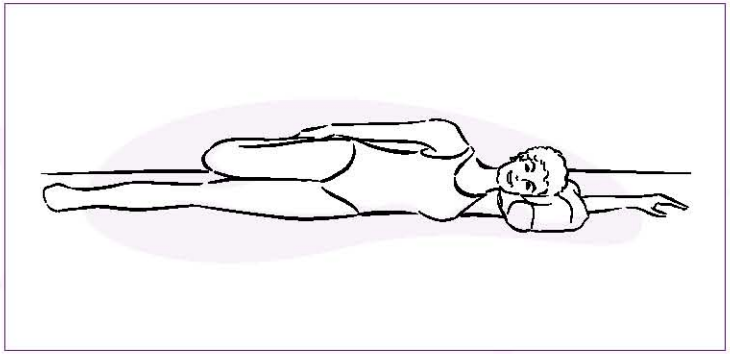
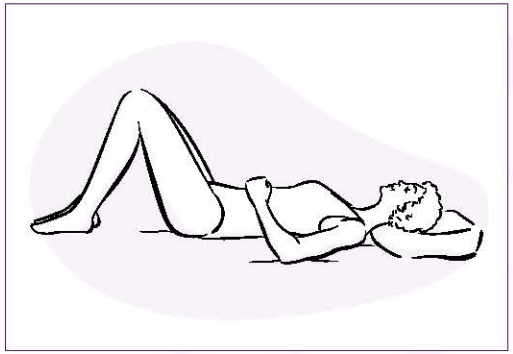
Stretching Exercises

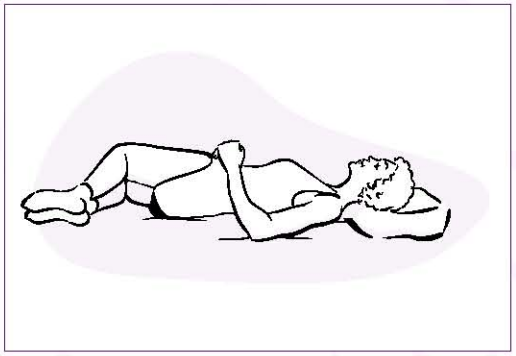


Quadriceps

Stretches muscles in front of thighs.

1. **Lie on side on the floor. Your hips should be lined up so that one is directly above the other one.**
2. **Rest head on pillow or hand.**
3. **Bend knee that is on top.**
4. **Reach back and grab heel of that leg. If you can't reach your heel with your hand, loop a belt over your foot and hold belt ends.**
5. **Gently pull that leg until front of thigh stretches.**
6. **Hold position for 10 to 30 seconds.**
7. **Reverse position and repeat.**
8. **Repeat 3 to 5 times on each side. If the back of your thigh cramps during this exercise, stretch your leg and try again, more slowly.**





Double Hip Rotation

Stretches outer muscles of hips and thighs. **Don't do this exercise if you have had a hip replacement, unless your surgeon approves.**

1. **Lie on floor on your back, knees bent and feet flat on the floor.**
2. **Keep shoulders on floor at all times.**
3. **Keeping knees bent and together, gently lower legs to one side as far as possible without forcing them.**
4. **Hold position for 10 to 30 seconds.**
5. **Return legs to upright position.**
6. **Repeat toward other side.**
7. **Repeat 3 to 5 times on each side.**

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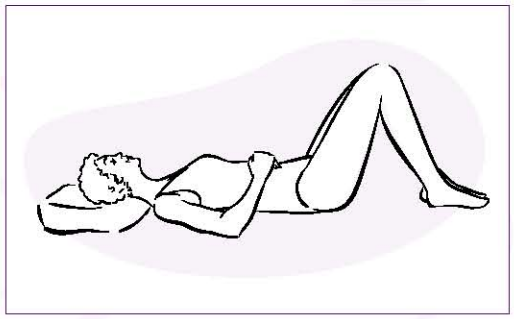
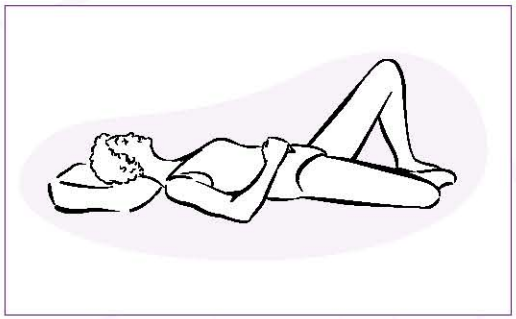
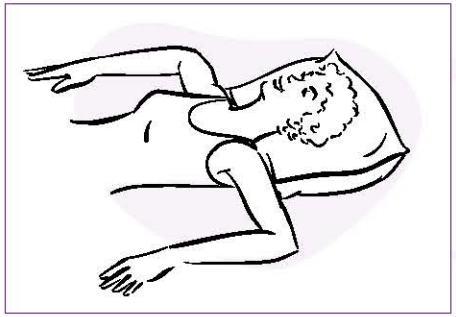




Single Hip Rotation

Stretches muscles of pelvis and inner thigh. **Don't do this exercise if you have had a hip replacement, unless your surgeon approves.**

1. Lie on your back on floor, knees bent and feet flat on the floor.
2. Keep shoulders on floor throughout exercise.
3. Lower one knee slowly to side, keeping the other leg and your pelvis in place.
4. Hold position for 10 to 30 seconds.
5. Bring knee back up slowly.
6. Repeat with other knee.
7. Repeat 3 to 5 times on each side.



Shoulder Rotation

Stretches shoulder muscles.

1. Lie flat on floor, pillow under head, legs straight. If your back bothers you, place a rolled towel under your knees.
2. Stretch arms straight out to side. Your shoulders and upper arms will remain flat on the floor throughout this exercise.
3. Bend elbows so that your hands are pointing toward the ceiling. Let your arms slowly roll backwards from the elbow. Stop when you feel a stretch or slight discomfort, and stop immediately if you feel a pinching sensation or a sharp pain.
4. Hold position for 10 to 30 seconds.
5. Slowly raise your arms, still bent at the elbow, to point toward the ceiling again. Then let your arms slowly roll forward, remaining bent at the elbow, to point toward your hips. Stop when you feel a stretch or slight discomfort.
6. Hold position for 10 to 30 seconds.
7. Alternate pointing above head, then toward ceiling, then toward hips. Begin and end with pointing-above-head position.
8. Repeat 3 to 5 times.

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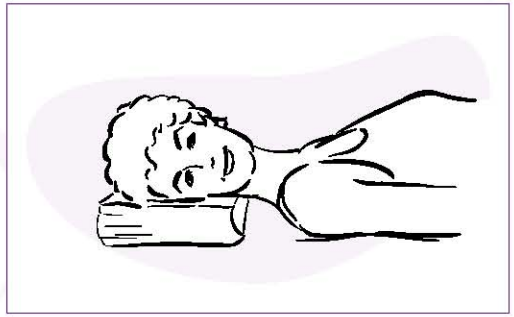
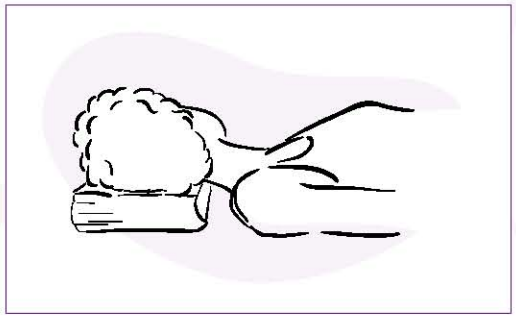
Stretching Exercises





Neck Rotation

Stretches neck muscles.

1. **Lie on the floor with a phone book or other thick book under your head.**
2. **Slowly turn head from side to side, holding position each time for 10 to 30 seconds on each side. Your head should not be tipped forward or backward, but should be in a comfortable position. You can keep your knees bent to keep your back comfortable during this exercise.**
3. **Repeat 3 to 5 times.**

From: Exercise: A Guide from the National Institute of Aging

6.10 Advanced physical activity counseling for weight management

This section will detail specific physical activity guidance for some common chronic conditions that veterans may have. Note that the guidance that follows is general and is not intended to replace professional evaluation and treatment for an individual patient

6.10.a Amputation

Losing a limb can restrict physical activity, but does not eliminate the need for physical activity.

Goals

- To develop balance, agility, coordination, endurance, stretching, and strengthening.
- To improve all aspects of physical fitness, including cardiovascular, flexibility, muscle strength, walking efficiency, and motor skills.

Important considerations and special precautions

For both lower and upper extremity amputees:

- A consultation with a physical therapist or kinesiologist is recommended to help the veteran devise a suitable program and ensure he has access to any necessary special equipment.
- The part of the body that has been amputated will determine which exercises are appropriate.
- Exercises aimed at strengthening and flexibility will help with overall fitness and improve experience with prostheses.

For lower extremity amputees:

- It is important that a lower extremity amputee has a comfortable prosthetic limb(s) that is suited for the activity or exercise of choice:
- Activities and exercises such as treadmill walking, bicycling, rowing, StairMaster, Body Trec and other aerobic machines do not require special adaptations to a standard artificial limb.
- Activities and exercises such as running, sprinting, and swimming do require special adaptations so advise the veteran to work with a prosthetics clinic to obtain needed adaptations for prosthetic limbs.
- Pressure sores or hair follicle infections at the prosthesis/skin interface can significantly affect the quality of life and activity level of the veteran. Good prosthesis fit and practicing proper hygiene will help prevent skin problems.
- The veteran should determine the right size of stump socks and the correct number of stump socks to be worn during physical activity and remember to change stump socks daily and when they are damp or wet (e.g., following exercise). This is essential to help prevent skin irritations and blisters.

For upper extremity amputees:

- Upper extremity amputees, because of their healthy lower extremities, are not as limited in their modes of exercise as lower extremity amputees. All activities and exercises involving the lower extremities that can be performed by non-disabled individuals are applicable to upper extremity amputees.

- Upper extremity amputees should perform applicable upper-extremity exercises while standing and, if sitting, they should allow their feet to be in contact with the floor. This is important to maintain balance and stability.

6.10.b Arthritis or joint pain

Most forms of arthritis benefit from regular physical activity; however some forms of arthritis or musculoskeletal disorders can be made worse with inappropriate exercise. Arthritis comes in 2 basic types:

Osteoarthritis (OA), which is much more common; is sometimes referred to as degenerative joint disease. OA leads to deterioration of cartilage and formation of bone in the main joints of the body, which commonly include the knee, hip, spine, and hand.

Rheumatoid arthritis (RA) is a chronic and systemic inflammatory disease. Vigorous exercise is contraindicated for rheumatoid arthritis during periods of acute joint inflammation or uncontrolled systemic disease. General stretching and very light activity as tolerated during these acute periods can help preserve function.

Goals

- To develop and maintain joint flexibility, muscle mass and strength.
- To improve range of motion.
- To reduce the pain and weakness from arthritis.

Important considerations and special precautions

Limited physical activity is often the result of joint pains or limitations caused by arthritis and this may pose a significant barrier to initiating a program for some veterans. Specific joints affected by arthritis determine exercise mode. Veterans with severe pain or restricted range of motion in joints may benefit from a physical therapy consultation to design an individualized program.

- Deconditioned and poorly supported joints may be at increased risk for injury from greater impact or poorly controlled movement or gait.
- Possible inability to perform repetitive movements such as walking at a brisk pace or cycling.
- Water aerobics, swimming, and water walking are excellent activities to consider for veterans with arthritis.

Counsel the veteran with arthritis or joint pain to:

- Select shoes with maximum shock absorption.
- Take things slowly and gradually progress.
- Avoid high repetition, high resistance, and high impact exercises.
- Avoid overstretching the joints.
- Avoid stair climbing, fast jogging, or running if he has arthritis in the hip or knee.
- Stop exercising if he experiences severe pain, discomfort, or swelling.

6.10.c Back pain and spinal disc disease

Chronic back pain may reduce the veteran's ability to exercise or perform certain activities during acute episodes of pain. However in general, regular exercise may result in improvement in chronic back pain and prevention of future acute episodes. In the case of severe acute back

pain or a definitively diagnosed herniated disc, exercise is not recommended unless prescribed by a physician and monitored by a physical therapist.

Goals

To prevent further debilitation and disability from back pain and inactivity by increasing muscular strength, flexibility, endurance and range of motion.

Important considerations and special precautions

- Veterans with specific anatomic causes for low back pain (e.g., spondylolysis, spondylolisthesis, herniated disc, spinal stenosis) should have a medical evaluation and if appropriate, a referral to other specialists as needed (physical medicine and rehabilitation, neurosurgery, orthopedic surgery, etc.)
- Most patients with low back pain benefit from specific flexibility training of the lower extremities.
- Back and trunk muscle conditioning and stretching exercises can improve chronic low back pain and possibly prevent future episodes of acute pain. Use of special back exercise machines provide no additional benefit over traditional types of back and trunk exercises. These types of activities should be part of a regular program; however they should be performed no earlier than 2 weeks after an acute episode of low back pain.
- Veterans should be cautioned to avoid exercising to a level that produces unacceptable levels of low back pain. During acute episodes, stick with aerobic exercise that minimally stresses the back like swimming, walking, and stationary cycling. Avoid high impact activities such as stair climbing, high impact aerobic dancing, and running.
- Counsel the veteran to progress gradually in the absence of pain.
- During strength training, advise veteran to increase the number of repetitions and not the weight or resistance.

6.10.d Blood disorders / blood thinners

Blood disorders represent a highly variable group from relatively benign conditions like mild anemia to severely limiting diseases like leukemia or acute coagulopathies. In general, acute symptomatic blood diseases should be treated and controlled prior to beginning new programs of physical activity.

Goals

- To increase endurance.
- To increase skeletal muscle function.
- Help compensate for decreased oxygen carrying capacity that may result from blood disease.

Important considerations and special precautions

- Veterans with symptomatic anemia at any hemoglobin level should avoid physical activity until condition is stabilized.
- Veterans with asymptomatic anemia at hemoglobin levels < 10 mg/dl should begin slowly and progress as tolerated. These patients are likely to have an exaggerated heart rate response to exercise, limited peak performance, and easy fatigability.

- Veterans with asymptomatic anemia may have occult peripheral or coronary artery disease unmasked when beginning a new program due to increased oxygen demands.
- Veterans with sickle cell anemia or sickle cell trait should pay special attention to maintaining adequate hydration during all forms of exercise to avoid dehydration and precipitation of a crisis.
- Veterans with thrombocytopenia or coagulopathies are at higher risk from bleeding due to trauma or severe high blood pressure associated with the most vigorous forms of exercise.
- Vigorous endurance exercise is contraindicated when platelet counts are < 50,000. Heavy strength training should also be avoided in patients with platelet counts < 100,000 due to dramatic increases in blood and intracranial pressure associated with heavy resistance exercises.
- Veterans with asymptomatic coagulopathies should choose activities that minimize the risk of falls, joint trauma, and weight bearing. Swimming and stationary cycling are recommended activities for these patients.
- Veterans who are being treated with blood thinners (e.g., Coumadin®, warfarin generic) should avoid activities that have a risk of collisions and/or falls; such as contact sports like football, hockey, and basketball.
- Remind veterans with coagulopathies or who are taking blood thinners to avoid using non-steroidal anti-inflammatory (NSAID) types of analgesics such as aspirin or ibuprofen, for the relief of minor muscle aches associated with beginning a new program of physical activity. Use of these agents can lead to gastrointestinal ulcers and bleeding.

6.10.e Coronary artery disease (MI, unstable and stable angina)

Exercise plays an important role in both the prevention and rehabilitation of many forms of heart disease. Exercise or increased physical activity can have a positive influence on many of the factors that increase the risk for heart disease such as high blood pressure, high cholesterol, diabetes, and obesity. Both the *MOVE!23* Staff Report and the *MOVE! Physical Activity Decision Aid* direct veterans with heart disease or undiagnosed symptoms of possible heart disease such as shortness of breath, chest pains, or discomfort to have an evaluation by their medical provider. Medical providers can refer to the Pre-Exercise Cardiovascular Risk Stratification Chart and the PARmed-X in Chapter 3 for more information on evaluating veterans prior to physical activity.

For veterans with a recent history of a cardiovascular event, referral to a formal cardiac rehabilitation program is recommended to help establish functional capacity, set appropriate initial upper training limits, and provide supervision at least initially. Medications for veterans with heart disease and/or hypertension often decrease heart rate and blood pressure resulting in altered exercise response. This limited heart rate response can cause early fatigue and limited exercise tolerance. For this reason, ratings of self-perceived exertion (i.e., the Borg Scale) should be used in place of (or in conjunction with) target heart rate for monitoring intensity of activity.

Goals

- To decrease fatigue in daily activities.
- To improve cardiorespiratory function.
- To improve work and recreational performance.
- To improve blood lipid and glucose profile.
- To decrease risk of mortality from cardiovascular disease

Important considerations and special precautions

- Patients with heart disease are more likely to demonstrate limiting signs or symptoms such as angina, BP fluctuations, difficulty breathing, and ventricular dysrhythmias.
- Medications for veterans with heart disease often decrease heart rate (HR) and blood pressure (BP) resulting in altered exercise response. For patients using beta-blockers, HR is artificially low resulting in the need to alter/reduce the target HR range for physical activity.
- Veterans with stable angina should be able to clearly identify their own anginal symptoms and describe their immediate treatment for it prior to beginning a program of physical activity.
- An upper endurance training target that is slightly below the angina threshold should be determined. As tolerance increases, this can be increased upwards.
- Warm-up and cool-down should be no shorter than 10 – 15 minutes each. Gradual and prolonged cool down can help to prevent episodes of hydrostatic blood pooling in the lower extremities that can lead to hypotension.
- Advise the veteran to be aware of changes in anginal symptoms before, during, or after physical activity and to notify their primary care provider about such changes.

6.10.f Hypertension

Patients with hypertension can reduce their blood pressure through a program of regular physical activity.

Goals

- Reduce the rise in blood pressure that can be expected over time.
- Decrease the amount of adjunctive medication therapy required to control hypertension.

Important considerations and special precautions

- Veterans with uncontrolled hypertension (SBP > 180 mmHg or DBP > 105 mm Hg) should delay starting a program of physical activity until blood pressure has been lowered and stabilized with medication.
- Veterans with controlled hypertension and NO other cardiovascular conditions may begin a program of moderate physical activity without a medical evaluation. An evaluation should be done prior to beginning a program of vigorous activity.
- Aerobic training at somewhat lower intensities appears to lower blood pressure as much as exercise at higher intensities.
- Strength training should not be the only component of physical activity for patients with hypertension as it has not consistently been shown to lower blood pressure. Strength training should consist of low resistance with high repetitions.
- Anti-hypertensive medications, specifically beta-blockers, may lower resting heart rate and limit the heart rate response to physical activity causing early fatigue and limited exercise tolerance. Advise the veteran of this possibility to avoid discouragement and failure and remind him that even lower intensity levels of physical activity will be beneficial to him.
- Advise veteran to avoid abrupt cessation of physical activity and use a longer cool-down period. This helps to blunt a post-exercise fall in blood pressure than can be related to the use of certain vasodilating anti-hypertensive agents.
- Some veterans may be tempted to stop their BP medication thinking that it is no longer necessary if they are exercising. Remind them not to stop or decrease their medication without discussing with their primary care provider first.

6.10.g Peripheral vascular disease

Peripheral vascular disease refers to hardening and blockages of the arteries outside of the brain and heart and most commonly affects the arteries of the lower extremities. Symptoms can vary from mild pain with physical activity (termed claudication) up to pain at rest that may indicate limb-threatening ischemia.

Goals

- To reduce severity and frequency of claudication symptoms.
- To reduce other cardiovascular risk factors often co-morbid with peripheral artery disease.

Important considerations and special precautions

- Veterans with peripheral artery disease often have co-existing coronary heart disease so evaluation and consideration for exercise testing and/or participation in a supervised cardiac rehabilitation program is recommended.
- Advise veterans to perform interval aerobic activity (e.g., walking or stair climbing) up to an intensity that causes pain of a score of 3 on a 4-point scale (1=no pain, 2=slight pain, 3=moderate pain, 4 =intense pain) then stop, rest, and allow full recovery before beginning a new interval.
- Seek medical attention for extremity pain that does not resolve within a reasonable amount of time (may vary by patient but pain lasting beyond several hours may indicate limb-threatening ischemia and needs immediate medical attention).
- Gradually increase exercise duration before increasing intensity.
- There is a higher risk of skin breakdown due to co-morbid diabetic neuropathy or ischemic ulceration; therefore, attention to proper footwear, good foot hygiene, and vigilance for early problems is advised.

6.10.h Stroke (cerebrovascular accident-CVA)

Stroke is a sudden central nervous system impairment in which the flow of oxygen and nutrients to the brain is halted through ischemia or hemorrhage.

Goals

- To improve overall cardiovascular fitness, strength, range of motion, and flexibility.
- To decrease risk factors for a second stroke through decreasing hypertension and body fat, and improving the blood lipid profile and glucose regulation.

Important considerations and special precautions

Patients who have prior history of stroke TIA often have other serious co-morbidities such as:

- Hypertension
- Diabetes
- Coronary artery disease
- Peripheral vascular disease

Evaluation and consideration for exercise testing and/or participation in a supervised rehabilitation program is recommended.

Patients with stroke may exhibit some or all of the following impairments after stroke, which may limit choice of activities or necessitate supervision to ensure exercise is performed safely:

- Loss of motor or sensory function in upper or lower extremities or both. (Spasticity and muscle contractures are common.)
- Visual field deficits
- Impaired ability to communicate through speech
- Mental confusion and/or cognitive deficits
- Impaired learning and/or performance of voluntary movements.

Consultation with a physical therapist, kinesiotherapists, or other exercise specialist is recommended for veterans with moderate to severe functional deficits.

6.10.i Diabetes

Diabetes is a metabolic disease of 3 major types: type 1 (juvenile onset), type 2 (adult onset), and gestational (during pregnancy). Veterans with diabetes have a higher risk for secondary health conditions, including coronary artery disease, blindness (retinopathy), kidney disease neuropathy, peripheral vascular disease, and amputations. Exercise, in addition to proper nutrition, is an important part of good diabetes control.

Goals

- To improve blood glucose control.
- To improve insulin sensitivity and decrease need for medications.
- To decrease body fat.
- To improve cardiovascular health by reducing certain risk factors.

Important considerations and special precautions

Referral to a primary care provider for consideration for exercise testing prior to beginning a program of *vigorous* physical activity is recommended for all diabetics. Some authorities also recommend that diabetics planning a program of *moderate* activity who are at risk for CAD based on the criteria below should also have a medical evaluation.

- Type 1 diabetic over 30 years of age
- Type 1 diabetic longer than 15 years
- Type 2 diabetic over 35 years old
- Type 1 or 2 diabetic with one or more CAD risk factors
- Suspected or known CAD
- Presence of microvascular diabetic complications (retinopathy, nephropathy, neuropathy)

Beginning a program of physical activity should be delayed in diabetics with active retinal hemorrhage, illness or infection, or unstable blood sugars.

Veterans with diabetes may be prone to hypoglycemia (low blood sugar) resulting from increases in physical activity. Review symptoms of hypoglycemia with diabetic veterans:

- Change in heartbeat
- Starting to sweat more

- Feeling shaky, anxious, or hungry
- Dizziness or lightheadedness

Strategies to reduce risk of hypoglycemia:

- Diabetic veterans who are physically active may need to increase the amount or frequency of eating, OR decrease their insulin dose or medications around the time of physical activity in order to decrease the risk of exercise-induced hypoglycemia.

- Counsel the veteran to perform exercise at the same time each day to minimize problems with exercise-induced hypoglycemia. Exercise in the morning is preferred if possible. To avoid a nocturnal insulin reaction and resultant hypoglycemia, exercise should be avoided in the late evening.

- Keep fast acting glucose foods around during physical activity (e.g., raisins, sugar cubes, candy, fruit juice) to treat an exercise-induced episode of hypoglycemia.

- Veterans with diabetes should be reminded not to skip meals and to check blood sugar levels regularly.

Veterans with diabetes may have autonomic neuropathies and therefore may have an increased likelihood of hypotension due to dehydration. Advise veterans to drink plenty of fluids before, during, and after exercise (but avoid heavily sweetened sodas, juices, punch mixes which may cause high blood sugars).

Diabetics should practice good foot care:

- Wear appropriate well-fitting shoes and replace them when they begin to wear out.
- Wear clean, smooth-fitting socks. Cotton socks provide the best comfort and support.
- Inspect the feet for redness, warm spots, or blisters after exercising. Veterans should call their primary care provider immediately if they see problems.

Lastly, they should always carry identification indicating diabetic status and medications.

6.10.j Osteoporosis

After age 35, a small degree of age-related bone loss is normal; however certain individuals can experience a more rapid loss of bone density which leads to osteoporosis. This condition increases the risk of bone fracture; particularly at the wrist, hip, and spine. Older, white or Asian post-menopausal women of low body weight, those with a positive family history, long-time users of corticosteroids, and patients with vitamin D deficiency and secondary hyperparathyroidism are at particularly high risk. Other risks include premature menopause, history of prolonged periods of absent menses, chronic smoking, excessive alcohol consumption, low dietary calcium, and physical inactivity.

Exercise increases bone density and can prevent osteoporosis in children, healthy adults, and non-osteoporotic post-menopausal women. In older, osteoporotic patients, dramatic increases in bone mass with exercise are less attainable than in younger, non-osteoporotic patients; however, small improvements in or maintenance of existing bone mass is possible.

Goals

- To stimulate bone growth.

- To maintain bone density.
- To increase muscle strength.
- To improve balance.

Important considerations and special precautions

Veterans with osteoporosis should avoid exercises that:

- Place high compressive forces on the spine with trunk flexion
- Result in quick trunk rotation
- Involve forward flexion of the spine and stooping
- Cause the trunk to bend forward in a fixed position

Consultation with a physical therapist is recommended if the veteran has any questions regarding the safety of a particular exercise or activity. Strength training is an important component of any physical activity program for veterans with osteoporosis as it stimulates bone growth to a higher degree than either aerobic or flexibility training. Best strength results are obtained from fewer repetitions at a higher intensity.

Aerobic weight-bearing activities (like walking) are preferred over non-weight bearing activities (like swimming, cycling) as they stimulate bone growth to a higher degree. Veterans with osteoporosis may have high anxiety about falling due to increased fracture risk. Careful attention to making the environment free of hazards, such as loose mats, carpeting, and equipment, may help alleviate some of this anxiety. Participation in a supervised program may also help reduce anxiety.

6.10.k Respiratory diseases

Respiratory disease includes conditions such as COPD (emphysema / chronic bronchitis), asthma, and pulmonary fibrosis. People with respiratory disease often tend to gradually decrease activity of all kinds- both exercise and daily living skills, due to increased breathlessness and fatigue.

Goals

- To improve functional status with respect to pulmonary symptoms such as dyspnea, fatigue, and breathlessness.
- To improve cardiovascular function.
- To increase muscle strength.

Important considerations and special precautions

- A medical evaluation is recommended prior to increasing physical activity to distinguish between several possible causes of limited exercise capacity in pulmonary patients who often have cardiovascular comorbidities.

- Oxygen therapy may be necessary for some veterans and choice of activities will be determined by portability of equipment. Participation in a formal pulmonary rehabilitation program is recommended for oxygen dependent patients.

- Consultation with a respiratory therapist to evaluate, teach, and ensure effective use of respiratory medications and oxygen therapy can be useful for some veterans.

- Consultation with an occupational therapist to evaluate activities of daily living and teach energy conservation and improved body mechanics aimed at improving breathing efficiency and reducing oxygen demand can also be useful for some veterans.

- Respiratory symptoms may limit exercise of sustained duration. Exercise sessions may need to be 5 – 10 minutes in duration with gradual increases in work intervals.

- Veterans with pulmonary conditions should always carry on their person or have immediate access to their bronchodilator inhalers (e.g., albuterol) in case of acute attacks.

6.10.l Spinal cord injury

Spinal Cord Injury (SCI) is a complete or partial lesion to the spinal cord. The result of SCI is functional loss (sensory, motor, and autonomic dysfunction) and severity depends on the level and completeness of the lesion. The physical ability of persons with SCI is classified according to the amount of function retained. Common categories are paraplegia or quadriplegia/tetraplegia.

Goals

- To improve range of motion and reduce spasticity.
- To prevent deconditioning and obesity.
- To maintain the ability to perform activities of daily living and mobility, as well as to prevent injury through muscular balance.
- To provide psychological and/or recreational benefits.

Important considerations and special precautions

Consultation with a physical therapist, kinesiotherapist, or other exercise specialist is recommended to assist the veteran with SCI design a program individualized to their condition and abilities.

Limitations relevant to physical activity in SCI patients can include:

- Muscle contractures and osteoporosis in lower extremities
- Bradycardia with peak heart rate limited to 120 beats per minute
- Poor adaptation to stressors of heat and cold causing unusual sweating, blood shunting, shivering, and nasal congestion
- Orthostatic and exercise induced hypotension
- Injury level may limit or cause absence of forced expiration during exercise
- Leg paralysis resulting in excessive venous pooling from lack of venous muscle pumps in lower extremities
- Inability to stimulate the cardiovascular system to support higher rates of aerobic activity due to inability to voluntarily perform large muscle group exercise

SCI patients with lesions above the sacral level experience a loss of control with their bowel or bladder. Instruct them to monitor their urinary cycle and be sure to empty their bowel and bladder before starting exercise.

SCI patients often have spasticity; a condition characterized by high muscle tone and hyperactive stretch reflexes. It typically occurs in the muscles below the site of injury and is exacerbated by exposure to cold air, urinary tract infections, and physical exercise. Instruct the patient to stretch spastic muscle groups and avoid exercises that could aggravate the condition (which could vary from person to person). Legs should ordinarily be extended as much as possible.

Prevention of pressure sores/ulcers by avoidance of prolonged sitting without pressure relief and abrasion/bumping of bony prominences (hips, ischial tuberosities, sacrum, coccyx). Because of loss of trunk control, sufficient strapping and seat belts should be used during upright exercise. Prevent upper extremity overuse syndrome by varying exercise modes from week to week, (e.g., strengthening muscles of the upper back and posterior shoulder with stretching muscles of the anterior shoulder and chest.)

Use an environmentally friendly exercise space to avoid ambient temperature extremes, particularly with quadriplegics who often have significant autonomic dysfunction and inability to regulate body temperature. Use of elastic support stockings or abdominal binders can help maintain blood pressure, which may be necessary in veterans with hypotension due to autonomic dysfunction.

Chapter 7
Weight Loss Medications

In general, those who are attempting weight loss should use non-pharmacological means first. Participation in a behaviorally based, high intensity program can promote modest, clinically important weight loss in overweight/obese adults. Weight-loss medications should be considered only as an adjunct to health behavior changes in diet and physical activity. They should generally be used only with concurrent participation in *MOVE!* Levels 1 and/or 2 or another similar multidisciplinary behaviorally-based weight-management program.

7.1 General information

Weight loss medications have risks and side effects. They should be considered only for those at significant medical risk from obesity, generally those with BMI $\geq$ 30 or BMI $\geq$ 27 with one or more obesity-associated conditions (e.g., diabetes, hypertension, sleep apnea, hyperlipidemia, other). In patients who don't meet these criteria, the risk of complications from medication is usually greater than both the baseline health risk due to overweight and any potential benefit from weight loss.

Patients who take weight loss medications should be monitored closely for response to treatment and side effects. Therefore, medical supervision by a physician, nurse practitioner, or physician assistant is always required when using these medications.

Medication options

Many sympathomimetic/anorectic agents are available and have been used for the treatment of obesity over the past several decades. Most of these products have unacceptably high medical risks, are not effective in the long-term, or lack sufficient evidence for safety. In addition, many have the potential for developing tolerance. Examples of such products:

Dexfenfluramine	Fenfluramine
Desoxyephedrine	Mazindol
Phenmetrazine	Benzphetamine
Phentermine	Phendimetrazine
Diethylpropion	Other amphetamine derivatives

The products on this list that are approved by the US Food and Drug Administration (FDA) are labeled for short-term use in the treatment of obesity. While some agents on this list are no longer available in the US, patients may be able to obtain them from other countries.

When weight loss medications are indicated, agents that have been approved for long-term use are preferred over short-term agents. Currently, 2 agents are approved by FDA for long-term use in the treatment of obesity. These include orlistat (brand name Xenical®) and sibutramine (brand name Meridia®)

The rest of this chapter will focus only on orlistat and sibutramine. Both drugs have been found to be efficacious with respect to promoting weight loss and preventing weight regain. While both drugs are approved for long-term use in weight loss, this is where the similarity between

the drugs ends. They have very different mechanisms of action and thus, very different risks and side effects. Although orlistat and sibutramine are approved for “long-term” use, few studies have followed patients taking these drugs for more than 2 to 4 years. We do not know what the very long-term (> 4 years) consequences of taking these drugs will be.

Because of their different mechanisms of action, concurrent use of orlistat and sibutramine has been proposed as a strategy for inducing larger amounts of weight loss compared to either agent alone. Currently there is insufficient evidence upon which to draw a conclusion. Risks and benefits of concurrent use should be carefully weighed and discussed with the patient.

7.2 Orlistat

7.2.a Mechanism of action

Orlistat blocks the enzyme lipase preventing the digestion and absorption of dietary fat and resulting in reduced calorie intake. The fats that are not digested simply pass through the gut and are eliminated in the feces. Orlistat doesn’t prevent ALL fats from being absorbed; it prevents about 30% or so, which is enough to produce a clinically significant weight loss. Patients who are already consuming diets very low in fat will probably not benefit from orlistat.

7.2.b Efficacy

Orlistat can be helpful for losing weight but by no means is it a "magic bullet". In a recent meta-analysis of 22 studies, patients who took orlistat lost an average of 6.4 pounds (range 4.4-11) more than those taking a placebo pill over a 12 month period. The difference between orlistat and placebo in percentage of subjects losing at least 5% of their body weight was 21% (favoring orlistat). Note that all trials included a diet lifestyle modification in the treatment and placebo groups, and some also included behavioral, educational, or psychosocial co-interventions.

7.2.c Dosing

Orlistat is taken as a 120 mg capsule 3 times a day either during or within one hour of each meal containing fat. The dose should be omitted if the meal is skipped or contains no fat.

Decreased fat absorption due to orlistat may impair the absorption of the fat-soluble vitamins A, D, E, and K. Fat-soluble vitamin deficiency is perhaps the most serious consequence of taking orlistat, but reports of it are rare. It is recommended that patients who take orlistat also take a daily multivitamin (MVI) that contains all 4 of these fat-soluble vitamins. Additional supplementation with individual fat-soluble vitamins is not necessary. The MVI should be taken either 2 hours prior to or 2 hours after orlistat to avoid impairing the absorption of the fat-soluble components.

7.2.d Adverse effects

Because the mechanism of action for orlistat is in the gut rather than in the bloodstream, it has few side effects outside the gastrointestinal system. Side effects are generally mild, transient, and occur within 3 months of starting therapy. About half of all GI side effects last for less than one week, and most last for no more than 4 weeks. Side effects decrease after the first year of treatment.

According to the manufacturer's insert, some of the most frequently reported adverse side effects from clinical trials reported at 1 year include:

- Oily spotting: 26.6% vs. 1.3% in placebo
- Flatulence with discharge: 23.9% vs. 1.4% in placebo
- Fatty/oily stool: 20.0% vs. 2.9% in placebo
- Oily evacuation: 11.9% vs. 0.8% in placebo
- Increased defecation: 10.8% vs. 4.1% in placebo
- Fecal incontinence: 7.7% vs. 0.9% in placebo
- Fecal urgency: 22.1% vs. 6.7% in placebo
- Abdominal pain/discomfort: 25.5% vs. 21.4% in placebo

A recent meta-analysis calculated the following "Number Needed to Treat for Harm" for select adverse effects (includes data from trials with 6 month-2 year outcomes):

- Diarrhea -->1 patient will experience diarrhea for every 2 treated
- Flatulence-->1 patient will experience for every 7 treated
- Bloating, abdominal pain, and dyspepsia -->1 patient will experience for every 26 treated

GI side effects are generally a result of fat that goes undigested through the GI tract, thus meals very high in fat tend to cause more symptoms than meals lower in fat. This can serve as a negative reinforcer for the patient to consume a nutritionally-balanced, reduced-calorie diet with no more than 30% of calories from fat. Patients who experience unpleasant side effects despite a lower fat diet can sometimes find relief by increasing fiber intake either through their regular diet or through the use of fiber supplements (e.g., Metamucil® or Citrucel®).

7.2.e Criteria for use in the VA

Orlistat is a non-formulary drug within the VA; it's available for use only through a non-formulary drug request by the prescribing provider. In addition, the national VA Pharmacy Benefits Management (PBM) Strategic Healthcare Group has established criteria for use of orlistat which are summarized here.

Criteria for initial 90-day supply

- BMI $\geq$ 30, or $\geq$ 27 with obesity-associated condition(s)
- Enrolled in *MOVE!* Level 1 and/or 2 or similar program
- No allergy to orlistat, malabsorption syndromes, or cholestasis
- Demonstrated ability to comply with low-fat diet
- Taking a multivitamin/mineral supplement with vitamins A, D, E, K

Criteria for initial 90-day refill

- Attended all follow-up appointments(1st at 2-4 weeks, then every 30 days)
- At 12 weeks, has lost at least 5% of initial body weight or is averaging $\geq$ 1 lb weight loss per week
- No intolerable side effects and patient wishes to continue
- No allergy to orlistat, malabsorption syndromes, or cholestasis
- Taking a multivitamin/mineral supplement with vitamins A, D, E, K

Criteria for refills every 6 months

- Maintained 67% of initial weight loss or has continued to lose weight
- Attended all follow-up appointments (at least one every 90 days)
- No intolerable side effects and patient wishes to continue
- No allergy to orlistat, malabsorption syndromes, or cholestasis
- Taking a multivitamin/mineral supplement with vitamins A, D, E, K
- Has been taking for less than 4 years (this is the maximum duration for this Rx)

These criteria can also be found on the PBM website at
http://vaww.pbm.va.gov/criteria/39t5uOrlistat%20CFU.pdf

7.2.f Long-term use

Patients who experience no or few minor side effects while taking orlistat can continue to take these drugs as long as they continue to make progress losing weight towards their goal OR have achieved their weight loss goal and need assistance with weight maintenance AND are within the time-frame established by PBM for maximum duration of therapy. PBM has established 4 years as the maximum duration of therapy for orlistat pending further evidence of long term efficacy and safety in veterans.

7.3 Sibutramine

7.3.a Mechanism of action

Sibutramine has a mechanism of action that blocks the reuptake of norepinephrine, dopamine, and serotonin. This results in suppression of appetite and early satiety. A second putative effect of sibutramine is stimulation of brown adipose tissue and thermogenesis which helps limit the fall in metabolic rate that normally occurs with weight loss and reduced calorie intake.

7.3.b Efficacy

In contrast to other short-term sympathomimetic agents with similar mechanisms of action, sibutramine has been evaluated in several longer-term trials and has not been found to lead to tolerance. In a recent meta-analysis of 5 studies, subjects who took sibutramine lost on average 9.8 pounds more (range 5.5-11) than subjects who took a placebo pill over 12 months. The difference between sibutramine and placebo in percentage of subjects losing at least 5% of their body weight was 15% (favoring sibutramine). As with the orlistat studies, participants from both treatment and placebo arms in nearly all studies also had dietary co-interventions; some also had exercise or behavioral modification interventions.

7.3.c Dosing

Sibutramine's recommended starting dose is 10 mg taken once a day with or without food. After 4 weeks, the dose can be increased to 15 mg taken once daily if the patient's weight loss has not been adequate (criteria for inadequate weight loss is in section 7.3.f). Patients who do not tolerate an initial dose of 10 mg daily can be tried on 5 mg daily. Unlike orlistat, sibutramine does not have to be dosed in relation to meals.

7.3.d Adverse effects

The most serious side effects of sibutramine include elevations in blood pressure (average increase at 1 year is 4.6 mmHg systolic, 2.8 mmHg diastolic) and elevations in heart rate (average increase at 1 year is 5.9 bpm).

Patients who elect to take sibutramine will require safety checks, including blood pressure and heart rate measurement, as frequently as every few weeks upon initiation of therapy. Participants in sibutramine clinical trials were younger, healthier, and predominantly female compared to the VHA patient population. Thus, it's not entirely clear whether the efficacy and safety of sibutramine can be generalized to the VHA patient population. PBM has established a sibutramine safety registry that will monitor patients using sibutramine for the next few years to determine whether the safety profile for sibutramine in the VA is similar to that observed in clinical trials.

Other less serious side effects of sibutramine include:

- Dry mouth: 17.2% vs. 4.2% in placebo
- Anorexia: 13.0% vs. 3.5% in placebo
- Insomnia: 10.7% vs. 4.5% in placebo
- Constipation: 11.5% vs. 6.0% in placebo
- Headache: 30.3% vs. 18.6% in placebo

7.3.e Precautions and contraindications for use

Because of its sympathomimetic effects, sibutramine should be used with caution in patients over 65. It should not be used in patients with poorly controlled hypertension, congestive heart failure, or coronary artery disease or in patients with severe liver or kidney impairment. Likewise it should not be used in patients who are taking:

- centrally acting appetite suppressants
- pseudoephedrine
- MAO inhibitors
- serotonin and/or norepinephrine reuptake inhibitors [fluoxetine (Prozac®), sertraline (Zoloft®), paroxetine (Paxil®), citalopram (Celexa®), escitalopram (Lexapro®), nefazodone (Serzone®), venlafaxine (Effexor®)]
- "triptan" type drugs commonly used to treat migraine headache [sumatriptan (Imitrex®), zolmatriptan (Zomig®)]

7.3.f Criteria for use in the VA

Criteria for initial 30-day supply

- BMI $\geq$ 30, or $\geq$ 27 with obesity-associated condition(s)
- Enrolled in *MOVE!* Level 1 and/or 2 or similar program
- No allergy or contraindications to sibutramine
  - Pseudoephedrine or MAOI, SSRI, SNRI, triptan or other serotonin affecting drug within 2 wks
  - Anorexia or bulimia
  - Uncontrolled hypertension (BP >145/90 mmHg)
  - History of CAD, CHF, arrhythmia, stroke, narrow angle glaucoma
- Must be enrolled in the VA sibutramine safety registry (done by pharmacist with first dispense)

Criteria for first 30-day refill

- Attended all follow-up visits including one within 1-2 wks of initial Rx
- Meets all safety criteria
  - No increases in resting SBP or DBP >10 mmHg and no BP > 145/90 mmHg on 2 or more consecutive visits
  - No increases in resting HR >10 bpm on 2 or more consecutive visits
  - No allergy or contraindications to sibutramine listed above
- Has lost at least 4 lbs within 4 weeks of initiation (dose can be increased to 15 mg for another 4 week trial if < 4 lbs has been lost)
- No intolerable side effects and patient wishes to continue

Criteria for refills every 30 days for next 4 months

- Has maintained initial weight loss or has continued to lose weight
- Continues to meet all safety criteria listed above
- Has attended all follow-up visits (at least one every 30 days)
- No intolerable side effects and patient wishes to continue

Criteria for continuation at 6 months

- Has lost at least 5% of initial body weight or an average of $\geq$ 1 lb per week
- Continues to meet all safety criteria listed above
- Has attended all follow-up visits (at least one every 30 days)
- No intolerable side effects and patient wishes to continue

Criteria for refills every 90 days after 6 months of use

- Has maintained at least 67% of their maximum weight loss to date
- Continues to meet all safety criteria listed above
- Has attended all follow-up visits (at least one every 30 days)
- No intolerable side effects and patient wishes to continue
- Has been taking for less than 2 years (this is the maximum duration for Rx)

These criteria can also be found at the PBM website:
http://vaww.pbm.va.gov/criteria/9q78w4Sibutramine.pdf

7.2.g Long-term use

Patients who experience no or few minor side effects while taking sibutramine can continue to take it as long as they continue to make progress losing weight towards their goal OR have achieved their weight loss goal and need assistance with weight maintenance AND are within the time-frame established by PBM for maximum duration of therapy. PBM has established 2 years as the maximum duration of therapy for sibutramine pending further evidence of long term efficacy and safety in veterans.

Chapter 8
Brief Residential Treatment

Residential treatment for obesity has been offered in the private sector for many years. Residential or inpatient settings allow the provision of very intensive treatment and are based upon the fact that treatment of greater intensity is generally more effective. Such settings have the advantage of restricted access to food, a busy daily schedule of treatment activities, and greater therapeutic resources such as facilities for supervised exercise, demonstration kitchens, and so on. An additional benefit may be that patients have time to practice new skills in a controlled environment and learn how to incorporate those new behaviors into their daily routine. Following discharge, intensive follow-up is usually provided to facilitate an effective transition back to a patient's natural environment.

Except for 2 facilities, residential treatment for obesity is not widely available in the VA health care system at this time. Additional *MOVE!* materials will be developed to support Level 4 expansion in the future. The skills and issues addressed in the existing *MOVE!* program materials are all also applicable to residential treatment and can be provided at a higher intensity. *MOVE!* healthcare team staff are provided here with just a brief introduction to this option.

8.1 Treatment qualifications

Because of the resources required, residential treatment should be reserved for those at greatest risk for complications due to obesity. Qualifications for brief residential treatment may include:

1. A BMI $\geq$ 40, or BMI $\geq$ 35 with obesity associated comorbid medical conditions, AND
2. Failure to achieve clinically significant weight loss with less intensive treatment, OR
3. Inability to participate in less intensive treatment due to transportation or other extreme constraints

8.2 Components of residential treatment

Residential treatment for obesity is ordinarily relatively brief; a typical treatment duration is 2 to 4 weeks. A variety of therapeutic activities are included.

8.2.a Assessment

In order to provide an individualized treatment plan, a careful assessment is necessary. This includes a review of medical history and current status, family history of obesity, history of weight gains and losses, successes and failures of previous weight control attempts, nature of home and work environments, current eating and physical activity patterns, sources and degree of social support, mental and emotional status, behavioral strengths and weaknesses, readiness to change, and perceived barriers. The assessment must provide a clear understanding of all significant factors relating to each patient. Clearly, the environment the patient will be returning to is also an important consideration of an assessment. Patients should have a supportive social environment. Behaviors that are developed in residential treatment should also be viable for their home environment. For example, it does little good to teach a patient food selection

and preparation skills if they are returning to a residential setting where the patient has little control over food choices and preparation.

8.2.b Behavior change counseling

Numerous strategies exist for facilitating health behavior change. Although staff may apply some of these strategies during the residential period (for example, differential reinforcement of specific target behaviors, motivational counseling to strengthen readiness to change), the most important ones are those that can be utilized by the patient for self-care and maintenance following the residential stay. Examples may include impulse control training, learning to plan ahead, recording of food intake and physical activity, eating slowly, cognitive and attitudinal change strategies, and so on. Accordingly, intensive education and counseling on these strategies is necessary, with guided practice as part of the protocol.

8.2.c Nutritional education

Some patients may simply be unaware of basic nutrition information. For example, many people believe that drinking large amounts of fruit juice is “good for them” when in fact this adds excess calories. Patients must be provided with sound nutritional information in order for them to make informed food choices. Guided practice in making wise choices and planning lower calorie meals is usually beneficial.

8.2.d Cooking classes

A helpful way to strengthen patients’ knowledge of nutrition is to provide concrete practice in the form of cooking classes. Actual ‘hands-on” practice with preparation of healthy, tasty, and lower calorie meals helps develop extremely useful skills for continued weight control and maintenance after discharge.

8.2.e Limited access to food

Because some patients have had great difficulty in controlling their food intake in a free-feeding environment, a residential program provides healthy low calorie meals and snacks while preventing access to other foods. This often results in weight loss during a patient’s stay and reinforces continued active engagement. Furthermore, it allows them to experience food that is tasty, healthy, and low in calories. These food choices can serve as a model for successful weight control eating after discharge.

8.2.f Physical activity

Long-term weight control is most successful when physical activity is combined with caloric restriction. Exercise is difficult for very heavy people many of whom may have restrictions due to medical conditions. In most residential programs, patients receive a brief fitness assessment which results in an individualized exercise prescription. Physical activity education is a critical piece of residential treatment because of the potential for injury if physical activity is performed in an uninformed or dangerous manner.

8.2.g Group therapy

Obese persons suffer social and employment discrimination, public ridicule, and embarrassment, with negative emotional sequelae often following these experiences. In addition, psychological, emotional, attitudinal, cognitive, and relationship factors are frequently involved in both the historical and the current progression of obesity. These factors are often barriers to losing weight and maintaining the loss. Daily intensive group therapy can effectively address many of these psychological or emotional barriers through cognitive and emotional re-education and psychological skill building.

8.2.h Pharmacotherapy

Certain individuals may benefit from taking weight loss medications. Although such medication is ordinarily a temporary way to accelerate weight loss and provides only a moderate effect, it may give patients the encouragement needed to continue with the difficult behavioral changes necessary to lose weight and maintain the loss. There are currently 2 weight control medications approved by the FDA for the long term treatment of obesity. See Chapter 7 for more information on the use of these medications.

8.2.i Intensive follow-up

Maintaining newly acquired skills and habits takes a great deal of energy and focus. Human beings have a strong tendency to revert to old habits that take less energy unless the new behaviors are supported and reinforced. The period of transition from a residential setting to the former environment is difficult at best. If the new skills and behaviors are to be maintained, frequent guidance and support are necessary. Patients completing a residential course of treatment should continue to participate in Level 1 of their facility's *MOVE!* Program. Contact with the *MOVE!* healthcare team should occur not less than twice weekly at first, with the schedule being lengthened thereafter as clinically indicated. Patients should be advised to participate in *MOVE!* Level 2 - *Group Sessions* if possible, and groups specifically for post-residential care patients are desirable.

Chapter 9
Bariatric Surgery

Bariatric surgery is the only intervention that has been shown to produce large, sustained weight loss among the extremely obese (BMI $\geq$ 40); however, it is often considered the treatment of last resort due to higher risks associated with surgery as compared to other weight control options. Patient selection criteria for bariatric surgery are evolving based on the latest scientific evidence. To minimize complications and provide the best weight loss result, surgical intervention should be targeted to those who are able to comply with post-surgery requirements.

Although your facility may not currently offer bariatric surgery, these procedures are happening more frequently within and outside of the VHA. Thus, VA healthcare staff can expect to provide pre and post-operative care for patients having these procedures at other VAMCs or at non-VA facilities. The VHA Handbook on Bariatric Surgery (No. 1102.6) (*available on the MOVE! website*) provides specific policy on Bariatric Surgery within the VA and this chapter will describe some of this policy. Qualified patients may be referred for a bariatric surgical procedure to a VA facility currently designated as a VA Bariatric Surgery Center or on a case-by-case basis to facilities outside the VHA. Because of the specialized staff and equipment needed to provide this service, bariatric surgery services will likely be regionally situated rather than a service performed at every VAMC facility. Specific details about the referral process for bariatric surgery within the VA can be found in the Handbook.

9.1 Efficacy

Research on bariatric surgery continues to accumulate. The evidence clearly supports the superiority of bariatric surgery over non-surgical treatments for the long-term treatment of patients with a BMI $\geq$ 40 including outcomes such as:

- Weight loss
- Weight loss maintenance
- Prevention and/or reduction in comorbidities such as diabetes, sleep apnea, lipid abnormalities
- Improved health-related quality of life

Data that exist on bariatric surgery for less obese patients (BMI 35-39.9) support similar effectiveness, but experts consider this body of evidence inconclusive given the lack of appropriately designed studies for this target population.

Readers are referred to a recent high-quality meta-analysis for specific efficacy information comparing various bariatric procedures (Maggard et al.).

9.2 Types of procedures

Purely malapsorptive procedures are generally no longer performed for weight loss surgery because of the high risk of adverse effects and long-term medical complications. Currently used bariatric surgery procedures fall into one of two categories: restrictive or restrictive/malabsorptive. Effectiveness for inducing weight loss, surgical risks, and long-term

complications are slightly different for each of these categories. While greater amounts of weight loss can be achieved with restrictive/malabsorptive procedures, these procedures generally result in greater risk for medical complications.

9.2.a Restrictive procedures

Restrictive procedures limit the capacity of the stomach and slow gastric emptying. This causes one to feel full with even very small meals. Restrictive procedures include vertical banded gastroplasty (VBG), silastic ring vertical gastroplasty, and adjustable silicone gastric banding (LASGB). These procedures can often be performed laparoscopically and can lead to an average weight loss of 30% of body weight. This translates to about a 90 pound weight loss for a 300 pound person. Figures 23 and 24 illustrate several available restrictive bariatric procedures.

Figure 23. Laparoscopic Adjustable Gastric Banding

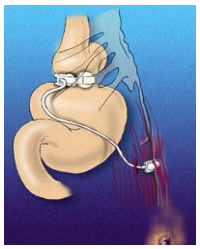
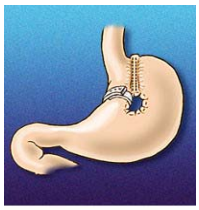


Figure 24. Vertical Banded Gastroplasty



Pictures courtesy of American Society for Bariatric Surgery

9.2.b Restrictive/malabsorptive procedures

Restrictive/malabsorptive procedures combine features of restrictive surgeries with procedures that divert food from the stomach to the end of the small intestine. This limits the absorption of food and thus reduces calorie intake even further. Names of specific procedures that fall into this category include the Roux-en-Y gastric bypass, silastic ring or vertical banded gastric bypass, and the biliopancreatic diversion. These procedures lead to a larger degree of weight loss as compared to restrictive surgeries alone, an average of around 35% of body weight, which translates to about a 105 pound weight loss for a 300 pound person. Figures 26 through 28 illustrate several of these procedures.

Figure 25. Roux-en-Y Gastric Bypass

Figure 26. Vertical Banded Gastric Bypass

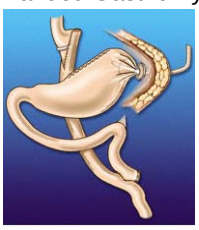
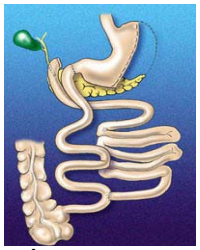


Figure 27. Biliopancreatic Diversion with Duodenal Switch



Pictures courtesy of American Society for Bariatric Surgery

Choice of procedure

While the Roux-en-Y Gastric Bypass (RYGB) has been the most studied bariatric procedure with respect to safety and efficacy, surgeon experience and patient's clinical status may ultimately determine which procedure is used. Patients and surgeons should discuss the risks and benefits of the various procedures and mutually agree on which choice is best.

9.3 Complications and risks

Studies report the risk of death from bariatric surgery to be between 0% and 2%. In general, laparoscopically performed procedures have lower mortality risks than open procedures and have lower rates of wound infection. The risk of death increases for patients with extremely high BMIs (> 50) and/or who have multiple medical conditions.

Complications occur in about 20% of bariatric surgical cases. Complications resulting from bariatric surgery include the usual risks of any surgical procedure, such as anesthesia problems, bleeding, and cardiovascular events incurred while on the operating table or in the early post-operative period (MI, CVA, DVT/PE). Other early complications include nausea/vomiting, incisional hernias, wound infections, stenoses, stomach ulcers, stomach/intestine leaks or ruptures, and bowel obstruction. For procedures that use bands, slippage and/or failure may occur. Some of these complications require additional surgery to repair.

Vomiting is quite common in the first few months after surgery and is usually due to overeating and/or not chewing food adequately. When vomiting increases in frequency, is associated with an intolerance to solid foods, or starts later than 6 months after surgery, stenosis is likely. Patients with frequent vomiting may develop low potassium and magnesium levels that require oral supplementation.

Later surgical complications include bleeding ulcers, gallstones, and "dumping syndrome". This syndrome occurs more commonly in patients who have malabsorptive procedures and is characterized by a variety of unpleasant and distressing symptoms, such as nausea, abdominal cramping, diarrhea, lightheadedness, fast heart rate, flushing, and passing out in response to eating or drinking foods high in sugars and fats.

Long-term medical complications mainly result from nutritional deficiencies that occur due to reduced intake and/or absorption of nutrients. Patients who have had bariatric surgery are at high risk for dehydration as well as vitamin B12, fat soluble vitamin (A, D, E, K), iron, folate, calcium, and protein deficiencies. These nutrient deficiencies are more common with the restrictive/malabsorptive procedures than purely restrictive procedures.

While not serious, other unpleasant side effects of surgery and its resultant weight loss include unusual body odors, frequent bowel movements, oral thrush, and large amounts of excess skin. At the current time, no VA policy exists on coverage for surgery to remove excess skin and patients should be informed of this. Hair loss sometimes occurs with rapid and large amounts of weight loss and is most common 2-4 months after surgery. In most cases, total hair loss does NOT occur, and the hair that is lost will re-grow.

9.4 VA criteria for use

In September 2005, the VHA Handbook on Bariatric Surgery was signed by the Under Secretary for Health and made available for use within the VA. This document outlines official VHA policy pertaining to Bariatric Surgery and was drafted by the VA Bariatric Surgery Workgroup with input from various individuals and program offices within the VA.

Criteria for bariatric surgery were designed consistent with current existing literature and consensus opinion to select candidates who are most likely to benefit and least likely to be harmed. In order for patients to be considered for bariatric surgery, they should meet the following criteria:

1. BMI $\geq$ 40 (Patients with BMI $\geq$ 35 with obesity associated conditions can also be considered.)

2. Participation in *MOVE!* Levels 1-2 or a similar multidisciplinary, behaviorally based weight management program for at least 3 months with some evidence of an adequate pre-operative weight loss

3. No medical contraindications to bariatric surgery

4. A formal psychological evaluation that finds the patient to be mentally and emotionally stable, likely to be able to control eating related impulses and comply with a restricted diet post-surgery, and likely to maintain the frequent and long term follow up necessary after this procedure.

This next section will discuss these criteria in further detail.

Criteria #1 - BMI $\geq$ 40

Most studies of bariatric surgery were limited to participants with BMI $\geq$ 40 so efficacy and safety data can really only be generalized to this population. Patients with this level of obesity are unlikely to be able to lose and sustain clinically significant ($\geq$ 10% of body weight) amounts of weight loss with behavioral interventions alone.

Criteria #2 – Participation in MOVE! (or similar program) with adequate pre-op weight loss

Potential candidates must participate in a behaviorally-based weight management program such as *MOVE!* for at least 3 months prior to surgery. The purpose of such a requirement is to become familiar with post-surgical diet requirements, begin a program of physical activity, and address significant behavioral issues that may be barriers to maintaining weight loss (depression, binge eating, etc.). This period of time also serves as an opportunity to demonstrate compliance with appointments and follow-up. An “adequate” weight loss must also be demonstrated prior to surgery. The Handbook does not currently define what constitutes an “adequate” weight loss purposely since the adequacy of a pre-operative weight loss in these situations is usually a matter of clinical judgment. A weight loss rate of ½ lb – 2 lb per week is consistent with what can be expected within a behaviorally-based program. Because of their extreme obesity, bariatric surgery candidates often have significant barriers to engaging in sufficient amounts of physical activity to achieve this rate; thus, lower rates of weight loss may still be considered “adequate”.

Criteria #3 – No medical contraindications to bariatric surgery

The following conditions are contraindications to bariatric surgery:

- Current tobacco smoking (Patients must abstain from smoking for at least 6 weeks prior to surgery.)
- Oxygen-dependent COPD
- Active hepatitis B or cirrhosis (active hepatitis C can receive consideration on an individual basis)
- Congestive heart failure or pulmonary hypertension unresponsive to treatment
- Multiple abdominal operations, complicated incisional hernias, or a history of multiple, diffuse, or severe intra-abdominal infection(s)
- Uncontrolled psychoses
- Active substance abuse within one year prior to consideration for bariatric surgery

Depending on severity, patients may have other medical conditions that make them poor surgical candidates. Consult with a bariatric surgeon for questions about individual cases.

Criteria #4 - A formal psychological evaluation

Because bariatric surgery requires life-long behavior modification post-operatively and because of the higher risks associated with the procedure as compared to non-surgical treatments, a psychological evaluation can be helpful to identify patients who either won't benefit from surgery or who may even be harmed by surgery.

The psychological evaluation should be performed by a behavioral health professional with experience in the evaluation and treatment of mental illness. In addition, this person should have some familiarity with bariatric surgery procedures, follow-up, and the required behavioral changes that are required post-operatively. Section 9.5 discusses the psychological evaluation in more detail.

9.5 Pre-operative psychological evaluation

The psychological evaluation generally consists of a review of the medical record including any separate mental or behavioral health records, a targeted clinical interview, and several psychological screening instruments.

A targeted clinical interview should cover the following areas:

- Active psychosis and alcohol or substance use disorders
- Other mental health illness (active, inactive, hospitalizations)
- Borderline personality disorder
- Social/family situation and supports
- Discussion of alternative plans should patient be turned down for surgery
- Follow up of "abnormal" results from psychological screening instruments used

In addition to evaluating mental health conditions, the evaluator should assess whether the patient has realistic expectations about what the surgical procedure entails and the patient's ability/desire to follow the surgically imposed dietary changes. Additionally, the evaluator should assess the stability of the home environment, social supports, and adherence to medical recommendations (e.g., taking medications, keeping follow-up appointments, agreeing to lab

testing). The Boston Interview (available on the *MOVE!* website) is an example of a structured clinical interview (Sogg and Mori).

Appropriate follow-up should be arranged for patients with mental health or behavioral concerns identified during this evaluation regardless of the decision for surgery.

The psychological evaluation should help to classify patients into one of the following groups:

1. Not a surgical candidate on the basis of current serious active psychopathology and/or evidence of repeated poor adherence with medical regimens, appointment keeping, and/or follow-up instructions. Examples: uncontrolled schizophrenia within past year; alcohol or other substance use disorders within the past year, severe borderline personality disorder, history of multiple suicide attempts, history of no-shows for 50% or more of appointments in the last year.

2. Decision on acceptability for surgery should be delayed pending response to further psychological evaluation and/or treatment. Example: poorly controlled OCD, depression, anxiety, bipolar disorder, or PTSD; suspected dementia; severe binge eating disorder; suicide attempt within past 5 years, unstable social environment (homeless, lack of kitchen access); very low self-efficacy/self-motivation.

3. Considered psychologically acceptable for surgery, but should be provided with ongoing psychological treatment before and after surgery. Examples: mild-moderate binge eating disorder; well-controlled schizophrenia, OCD, depression, anxiety, bipolar disorder, or PTSD; past history of alcohol or substance use disorders; remote history of an isolated suicide attempt.

4. Considered psychologically acceptable for surgery; provide psychological treatment on an as-needed basis. Example: any patient that does not fall into one of the above categories.

The rest of this section will provide an introduction to the recommended psychological instruments used as part of the pre-operative psychological evaluation.

9.5.a Alcohol Use Disorder Test-Core (AUDIT-C)

This instrument is widely used within VA for screening for problem alcohol use in primary care and other settings, and providers are likely already very familiar with this instrument. The actual instrument, including scoring, is provided within CPRS/VISTA. It consists of 3 items and generally takes less than 4 minutes to administer and score.

9.5.b Drug Abuse Screening Test (DAST©)

Background

DAST© is 20-item instrument to screen for problem substance use other than alcohol. It includes measures of problem severity, diminished control over drug use, and neuroadaptive symptoms of drug dependence. It is completed via self-administered paper or on-line format <u>*OR*</u> interview format and generally takes less than 7 minutes to administer and score. No special training is required to administer or score; however results should be interpreted and followed up by a qualified behavioral health professional.

Permission to reproduce and use the DAST© within VA facilities has been obtained from the copyright holders by the VA National Center for Health Promotion and Disease Prevention. Paper and on-line versions of the DAST© are available on the *MOVE!* website.

Guide to administration

- Interview format recommended for patients with low literacy.
- Provide either paper format with pen/pencil or access to computer for on-line version and instruct patients to read instructions thoroughly before completing.
- Score instrument according to instructions below.
- Provide results to interpreting psychologist or psychiatrist.

Scoring

The instrument consists of 20 yes/no items. Two items are negatively keyed such that a "NO" response rather than a "YES" response is in the direction of a drug problem. The negatively keyed items are items 4 and 5.

Sum the total number of "YES" responses to all Items except 4 and 5 _____

Sum the total number of "NO" responses to Items 4 and 5 _____

Add for the total score **+**_____

_____

Scoring Range is 0-20

Guide to interpretation

Scores of 6 or greater indicate higher risk of problem use. Patients who score at or above this level should be interviewed further to ascertain presence of an active substance use disorder.

Note that the DAST© focuses mostly on problems within the past 12 months; however some "positive" tests may result from past substance use and will require further interview to clarify current from past use.

References

Developed by H. Skinner at the Addiction Research Foundation at the University of Toronto.

Skinner, H. Drug Abuse Screening Test (DAST) in *Handbook of Psychiatric Measures*. Task Force for the Handbook or Psychiatric Measures. American Psychiatric Association. Washington, DC, 2000.

Gavin, D.R., Ross, H.E., Skinner, H.A. Diagnostic Validity of the Drug Abuse Screening Test in the Assessment of DSM-III Drug Disorders. *British Journal of Addiction*. 84, 301-307, 1989.

Skinner H. The Drug Abuse Screening Test. *Addict Behav*. 7:363-371, 1982.

9.5.c Millon Behavioral Medicine Diagnostic (MBMD™)

Background

The MBMD™ is a 165-item (true/false) instrument that assesses psychological factors that can influence the course of treatment of medically ill patients. It identifies patients who may have significant psychiatric problems and recommends specific interventions. It can pinpoint personal and social assets that may facilitate adjustment to physical limitations or lifestyle change. It

identifies individuals who may need more communication and support in order to comply with prescribed medical regimen. Lastly it can help structure post-treatment plans and self-care responsibilities in the context of the patient's social network.

The MBMD™ was specifically designed for and normed on "medical" patients as opposed to "psychiatric" patients. It can be used for patients ages 18-85 with a 6th grade reading level. The MBMD™ has 29 clinical scales, 3 response pattern scales, one validity indicator, and 6 negative health habit indicators. The MBMD™ is self-administered via the VISTA mental health package (paper forms are NOT available). The MBMD™ is a proprietary instrument owned by NCS, Pearson, Inc., so any reproduction or use outside of what is licensed and available on the VISTA mental health package is prohibited.

Guide to administration

- Provide access to the VISTA mental health package (usually through secure desktop) and instruct patients to read instructions and complete items as indicated.
- No special training is required to administer or score the instrument.
- Provide results to interpreting behavioral health professional.

Guide to interpretation

To date, no set criteria have been established as to interpreting MBMD™ scores in relation to suitability for bariatric surgery, but limited experience suggests the instrument may have some use. General interpretation guidelines which follow are adapted from: *Trial Package for MBMD™ Millon Behavioral Medicine Diagnostic* available from www.pearsonassessments.com. For suitability for Bariatric Surgery, empirical evidence suggests that severe psychiatric illness, poor configuration of coping styles, stress moderators (liabilities >> assets), and treatment prognostics indicating problematic compliance, utilization excess, medication abuse and interventional fragility are red flags and should be considered evidence for poor candidacy. Exact cut-points in prevalence scores that are predictive of poor or good outcomes are not available at this time.

General guidelines for interpretation:

1. Note the overall validity and reliability of test results using the MBMD validity indicator and response patterns:

   Validity Score of 0 indicates test is probably valid

   Validity Score of 1 indicates test results are questionable

   Validity Score of 2 indicates test results are invalid

   Disclosure (Scale X), Desirability (Scale Y), and Debasement (Scale Z) are classified as unlikely, possible or likely problem areas.

2. Note the psychiatric indications likely to complicate treatment. Consider further evaluation and treatment for prevalence scores greater than 75.

   Anxiety-Tension (Scale AA)
   High scorers may suffer from numerous somatic disorders.

Depression (Scale BB)

High scorers are likely to intensify the discomfort of their real physical and psychological problems.

Cognitive Dysfunction (Scale CC)

High scorers may not be able to recall past experiences, think abstractly and represent events and interrelate and process them.

Emotional Lability (Scale DD)

High scorers have clinical features akin to borderline personality disorder such as dysregulation of affect and instability of moods manifested by repetitive suicidal thoughts and self-mutilation; spells of anger, anxiety or euphoria or periods of dejection and apathy.

Guardedness (Scale EE)

High scorers display mistrust and edgy defensiveness; may also exhibit irritability and suspiciousness and provoke annoyance, if not exasperation, on the part of healthcare providers.

3. Review the configuration of Scales 1-8B to assess coping styles likely to influence response to illness/treatment.

Introversive (Scale 1)

High scorers are colorless, emotionally subdued, quiet and untalkative; may appear unconcerned about their problems; communicatively vague and difficult to pin down concerning symptoms; may be passive with regard to taking care of their physical needs.

Inhibited (Scale 2A)

High scorers may be hesitant with others, often shy and ill-at-ease; quite sensitive and often concerned that others may do them harm. May try to keep their physical discomfort to themselves.

Dejected (Scale 2B)

High scorers are persistently disheartened, unable to experience the pleasures or joys of life, notably glum and pessimistic; easily disposed to give up trying to work through emotional or physical problems.

Cooperative (Scale 3)

High scorers are eager to attach themselves to a supportive healthcare professional and will follow medical advice closely; usually do NOT take the initiative to seek treatment and will need to be told exactly what to do. May be inclined to overlook or deny the existence of real problems. May become dependent on their caretakers and resist suggestions that call for routine efforts on their part.

Sociable (Scale 4)

High scorers are outgoing, talkative and charming but may be changeable in their likes and dislikes. Usually very cooperative when following a treatment plan but this may be short-lived. Concerned with appearing nice and attractive but may be disinclined to face their problems. Largely, these patients are easy to treat and are quite sturdy and resilient.

Confident (Scale 5)

High scorers are self-assured and confident; however they are easily upset by physical ailments and will be motivated to follow regimens they believe will ensure well-being. May act as if they expect to be given special treatment by personnel and will take advantage of opportunities that may improve their condition. Need to be treated in a courteous and professional manner.

Nonconforming (Scale 6A)

High scorers are somewhat unconventional if not arbitrary; occasionally inconsiderate in their manner. Somewhat skeptical about the motives of others and tend to act insensitively and impulsively at times.

Forceful (Scale 6B)

High scorers are domineering and tough-minded. May be distrustful and may not follow regimens well.

Respectful (Scale 7)

High scorers are likely to be responsible, conforming, and cooperative. Keep their feelings to themselves and try to appear controlled, diligent and serious-minded. Do not like to be seen in the patient role; but are usually compliant.

Oppositional (Scale 8A)

High scorers are the opposite of high scorers on Scale 7; they are often unpredictable and difficult and may be erratic in following a regimen. Often seem displeased and dissatisfied with their physical and psychological state.

Denigrated (Scale 8B)

High scorers habitually focus on the most troublesome aspects of their lives; behaving as if they deserve to suffer.

4. Review elevations and configurations of Scales A-F to assess stress moderators that may influence patient response to treatment. Low scores on these scales represent stress moderating assets (presented in parentheses).

Illness Apprehension (vs. Illness Acceptance) (Scale A)

High scorers focus on and have high awareness of changes in their bodies such as tension/relaxation and arousal/fatigue. This characteristic may on the one hand influence their ability to monitor and report significant changes in sensations and symptoms but on the other hand may cause them to attend to less important sensations in such a way that they either ruminate excessively about their physical state or overuse medical services.

Functional Deficits (vs. Functional Competence) (Scale B)

High scorers perceive that they are unable to carry out the vocational and avocational activities, roles, and responsibilities of daily life; this scale focuses specifically on patient's sense of loss of independence and freedom.

Pain Sensitivity (vs. Pain Tolerance) (Scale C)

High scorers tend to be overly sensitized and reactive to mild to moderate pain; assesses the degree to which pain is likely to dominate the clinical picture and potentially affect adjustment and recovery following treatment.

Social Isolation (vs. Social Support) (Scale D)

High scorers are more prone to suffer physical and psychological ailments and poor adjustment to hospitalization due to feelings of isolation and perceived lack of social support.

Future pessimism (vs. Future Optimism) (Scale E)

High scorers do not anticipate a productive life and consider their medical state serious and potentially life-threatening. High scores usually reflect a patient's response to current medical problems rather than a lifelong tendency to be pessimistic (as assessed by the Depression and Dejected Scales). This characteristic may influence adherence to and

confidence in medical regimens and emotional reactions to test results and possibly the actual course of disease.

Spiritual Absence (vs. Spiritual Presence) (Scale F)
High scorers may lack religious or spiritual resources for dealing with the stressors, fears, and uncertainties of their medical condition.

5. Treatment Prognostics. These scales should be viewed as separate indices, review elevations.

Interventional Fragility (vs. Interventional Resilience) (Scale G)
High Scorers may have trouble adjusting emotionally to the demands of physically and psychologically stressful medical protocols and forecast the route of decompensation that they are likely to present if they become overwhelmed by these stressors.

Medication Abuse (vs. Medication Conscientiousness) (Scale H)
High scorers may have problems with or will misuse prescribed medication. This may take the form of changing doses, combining medications inappropriately, or using outdated prescriptions.

Information Discomfort (vs. Information Receptivity) (Scale I)
High scorers may not want specific details about diagnostic, prognostic and treatment procedure and outcomes, low scorers may want to know as much as they can about their medical condition and prognosis.

Utilization Excess (vs. Appropriate Utilization) (Scale J)
High scorers may be excessively demanding, insisting on attention from specialists, annoying staff, and taking up their time unjustifiably. This scale assesses the likelihood that patients will use medical services more than the average patient with a similar medical condition.

Problematic Compliance (vs. Optimal Compliance) (Scale K)
High scorers may not follow home-care advice, adhere to nutritional instructions or keep and be on time for appointments. They may exhibit a seeming contempt for healthcare personnel.

6. Management Guides. Integrate the interpretation from the prior scales and draw conclusions relevant to the management guides domain as measured by the scales below:

Adjustment Difficulties (Scale L)
High scorers are likely to experience treatment complications due to specific coping style, current psychological issues, available resources for managing stress, and his/her risk of engaging in unhealthy behaviors. This scale identifies patients that are likely to need the services of psychologist and behavioral medicine specialists.

Psych Referral (Scale M)
High scores may benefit from psychosocial intervention and are likely to respond well to a specific type and form of intervention.

References

Developed by T. Millon and colleagues.

Millon T. Antoni M, Millon C, Meagher S, Grossman S. *Millon Behavioral Medicine Diagnostic Manual.*(2001) Minneapolis, MN: NCS Pearson, Inc.

Millon T., Green C., Meagher, R. The MBHI: A new inventory for the psychodiagnostician in medical settings. *Professional Psychology*. 1982. Vol. 10, p 529-539.

9.5.d Multidimensional Health Locus of Control (MHLC)

Background

MHLC is an 18-item instrument that assesses the degree to which a patient believes he/she is in control or responsible for his/her own health. The MHLC has 3 domains:

- Internal → assesses degree to which they believe they are in control of their own health
- Chance → assess degree to which they believe chance, luck, or fate plays a role in their health
- Powerful Others → assess degree to which they believe others (specifically health care professionals, doctors, and family/friends) have control over their health

The MHLC can be self-administered via CPRS/VISTA, but paper forms are available on the *MOVE!* website. No explicit permission is needed to use and reproduce paper copies of the MHLC.

Guide to administration

- Interview format recommended for patients with low literacy.
- Provide access to computer for VISTA version and instruct patients to read instructions thoroughly before completing. Scoring is automatic.
- If using paper format, score instrument according to instructions specified below.
- Provide results to interpreting behavioral health professional.

Scoring

There is no "overall score" for the MHLC; rather calculate scores for each of the 3 subscales:

Internal Subscale
Sum the values circled for items 1,6,8,12,13,17
Possible Range is 6-36
Internal Sub-Scale Score____

Chance Subscale
Sum the values circled for items 2,4,9,11,15,16
Possible Range is 6-36
Chance Sub-scale Score_____

Powerful Others Subscale
Sum the values circled for items 3,5,7,10,14,18
Possible Range is 6-36
Powerful Others Subscale Score____

Guide to interpretation

To date, no set criteria have been established as to interpreting MHLC scores in relation to suitability for bariatric surgery but limited experience suggests the instrument may have some

use. Interpretation of MHLC involves interpreting 3 subscales. All 3 subscale scores range from 6-36. Scores closer to 6 are low and scores closer to 36 are high; the midpoint score is 21.

Empirical evidence suggests that ideal candidates for bariatric surgery will probably be those who score *high* on the "Internal" subscale and *low* on the "Chance" and "Powerful Others" subscales. (See Figure 28 below.)

Candidates who score *low* on the Internal subscale or *high* on the other 2 subscales should not necessarily be excluded from surgery on these grounds alone; but scores should be taken into consideration when evaluating overall suitability for surgery.

Figure 28. Interpretation of MHLC scores

Sub-scale	***Ideal Candidate***	***Good Candidate***	***Fair Candidate***	***Poor Candidate***
Internal	High	Mid-High	Mid-Low	Low
Chance	Low	Mid-Low	Mid-High	High
Powerful Others	Low	Mid-Low	Mid-High	High

**Range for each subscale is from 6-36; scores closer to 6 are considered low, scores closer to 36 are considered high; 21 is the mid-point score.*

Because the MHLC is not a personality test, beliefs can and do change over time. It may be possible through therapy to work with patients who score in the mid or low range to increase self-efficacy and sense of personal control prior to performing surgery.

References

Developed by K. Wallston at Vanderbilt University.

Wallston, K. A., Wallston, B. S. & DeVellis, R. (1978). Development of the multidimensional health locus of control (MHLC) scales. *Health Education Monographs.* 6, 160-170.

Wallston, B. S., Wallston, K. A., Kaplan, G. D., & Maides, S. A. (1976). The development and validation of the health related locus of control (HLC) scale. *Journal of Consulting and Clinical Psychology*. 44, 580-585.

9.5.e Questionnaire on Weight and Eating Patterns-Revised (QWEP-R©)

Background

QWEP-R© is a 28-item instrument (The first 6 items are demographic and are omitted from the version we are suggesting for use in the VA since that data is already available for patients.). When supplemented with a brief clinical interview, the QWEP-R© assesses DSM-IV criterion for Binge Eating Disorder (BED) and is the only "diagnostic" instrument for BED available. The QWEP-R© also includes historical variables of interest such as age at first overweight, lifetime max weight etc. Limitations of the QWEP-R© are that it only assesses for criteria within the last 6 months relevant to a diagnosis of BED and does not capture other eating patterns such as subjective bingeing or overeating. Furthermore, it may neglect some clinically significant cases that don't meet strict DSM criteria and may not pick up on sub-threshold cases.

The QWEP-R© is completed via self-administered paper form with confirmation of results by clinical interview. A paper version of the QWEP-R© is available on the *MOVE!* website. No

special training required to administer or score the instrument; however results should be interpreted and followed-up by a qualified behavioral health professional. Permission to reproduce and use the QWEP-R© within VA facilities has been obtained from the copyright holders by the VA National Center for Health Promotion and Disease Prevention.

Guide to administration

- Provide paper instrument and pen/pencil to patient.
- Use interview format for low literacy patients.
- Score paper instrument according scoring instructions below.
- Provide results to qualified behavioral health professional for interpretation.

Scoring

Diagnosis of Binge Eating Disorder (BED) requires the following:

1. Responses to the Following Items

Q4 *AND* Q5	Response = 1 (Yes)
Q6	Response = 3, 4, or 5 (at least 2 days per week for 6 months)
Q7a-Q7e	Three or more items checked as "Yes" (3 associated symptoms during binge eating episodes)
Q9 *OR* Q10	Response = 4 or 5 (marked distress regarding binge eating)

--AND--

2. Absence of Bulimia (purging or non-purging)

Diagnosis of Bulimia requires:

Q4 *AND* Q5	Response = 1 (Yes)
Q6	Response = 3, 4, or 5 (at least 2 days per week for 6 months)
Q11	Response = 3 or 4 (overvaluation of weight/shape)

Plus

For Diagnosis of Purging Bulimia

Q12 *OR* Q13 *OR* Q14	Response= 3, 4, or 5 (purging at least twice/ week for 3 months)

-OR –

For Diagnosis of Non-Purging Bulimia

Q12 *AND* Q13 *AND* Q14	NO Response = 3, 4, or 5 (purging at least twice/ week for 3 months)
Q15 *OR* Q16 *OR* Q17	Response= 3, 4, or 5 (compensatory non-purging behavior)

Guide to interpretation

To date, no set criteria have been established as to interpreting QWEP-R© scores in relation to suitability for bariatric surgery but limited experience suggests the instrument may have some use. Scores on the QWEP-R© indicating possible BED or Bulimia should be investigated further

through a clinical interview. The QWEP-R© does not indicate severity of these disorders per se, although the frequency of various binging behaviors and the extent to which binge eating causes distress may be an indication of severity.

References

Developed by Spitzer R. et al.

Questionnaire on Eating and Weight Patterns Revised ((QWEP-R) (1994). Spitzer RL, Yanovski SZ, Wadden T. IN: American Psychiatric Association. Task Force for the Handbook of Psychiatric Measures. (2000). *Handbook of Psychiatric Measures*. Washington, DC. American Psychiatric Association. Pg 665-668.

Nangle DW et al. Binge Eating Disorder and the Proposed DSM-IV Criteria: Psychometric Analysis of the Questionnaire of Eating and Weight Patterns. *Int J of Eat Disord*. 16(2) :147-157

Spitzer R et al. Binge Eating Disorder: its further validation in a multisite study. *Int J Eat Disord*. 13:137-153

9.6 Pre-operative care and evaluation

Patients identified by their primary care medical providers as potential bariatric surgery candidates will be screened by the bariatric surgeon and/or bariatric surgery team at a VHA or outside facility per the referral process detailed in the VHA Handbook on Bariatric Surgery available on the *MOVE!* website. In general, selected patients meet with the surgeon and other bariatric staff (dietitian, psychologist, etc.) at least once to prepare for surgery. In some VHA facilities, this meeting can be arranged via video teleconferencing. The pre-surgery meeting should include the following:

9.6.a Pre-operative evaluation

At the minimum, most patients will require some blood work as determined by the surgeon and anesthesiologist. Other testing such as EKG, stress test, chest X-ray, endoscopy or others may also be required depending on patient's clinical status.

9.6.b Pre-operative instructions

Some surgeons may ask patients to go on a low calorie, high protein diet the week or two before surgery to shrink a fatty liver. Some may ask patients to begin muscle strengthening exercises to prevent post-surgical muscle wasting due to periods of relative inactivity after surgery. Extremely obese patients may be asked to lose a certain amount of weight prior to surgery to minimize the risk of surgical complications.

9.6.c Pre-surgery education

This includes reviewing the typical hospital and post-hospital course, wound care, post-op diet and physical activity instructions, and who to call for information (problems, questions, follow-up appointments). Some bariatric surgical programs hold pre-surgical group sessions. Topics covered include: managing binge eating, stress/mood management techniques, medical information on the short- and long-term side-effects of surgery and management strategies, dietary management, and presentations by post-surgical patients. A major purpose of these pre-surgical sessions is to assist patients in forming realistic expectations and developing skills

required for successful weight loss and maintenance. Inclusion of multiple disciplines in such sessions (e.g., physician, dietitian, exercise specialist) is appropriate.

9.6.d Common issues in pre-operative care and evaluation

Patients are sometimes so eager to obtain this surgery that they are willing to say just about anything the staff wants to hear in order to be approved for surgery. This further supports the need for a pre-surgical treatment period such as participation in *MOVE!*. This period should assist the patient in building weight management skills which will be required following surgery. Likewise, this should make the team more familiar with the patient's individual needs and any issues can be addressed prior to surgery.

Candidate patients often have a history of problem eating behaviors. For some, the inability to address problem eating behaviors is a serious problem. Bariatric surgery is a tool to assist with weight loss and maintenance and without proper adherence to post-operative dietary instructions, patients will not lose clinically significant amounts of weight. Furthermore, over time they may regain whatever weight they do lose defeating the entire purpose of the surgery in the first place. Unfortunately, binge-eating is very common in the extremely obese. In addition to "sabotaging" the purpose of bariatric surgery, inability to manage binge eating can place the post-bariatric patient at risk for complications such as severe reflux, vomiting with electrolyte disturbances, and in rare cases gastric rupture. A good sign is when patients can acknowledge the extent of their problem eating/drinking behaviors and are willing to work on gaining mastery prior to surgery.

Some patients see bariatric surgery as a quick fix with little impact on overall lifestyle and functioning. Although bariatric surgery often leads to relatively rapid weight loss, maintenance of weight loss can be a problem. Patients need to be able to verbalize an understanding that long-term maintenance requires an ongoing commitment to dietary, physical activity, and behavioral modifications. While highly successful, bariatric surgery requires daily vitamin/mineral supplementation, lifetime changes in diet, and long-term medical surveillance.

9.7 Post-operative care

Care following surgery can generally be delivered through the patient's continued participation in Levels 1 and 2 of *MOVE!*. It is likely that patients will need individual specialty consultations from various *MOVE!* team staff for specific post-operative problems and/or routine follow-up. Level 2 - *Group Sessions* can also be used to provide care and may be of particular value when participants are all post-bariatric patients. A support group may provide a context for mutual support of other patients experiencing similar issues, an opportunity for education on adherence, and a mechanism for identifying patients who may be having particular difficulty in coping. The support group format provides an efficient way for behavioral health professionals to provide specific assistance in managing binge eating, stress, interpersonal relationships, sexual difficulties, and mood. Long-term management could also be facilitated through guidance in relapse prevention, ongoing self-reward for adherence to healthy lifestyle regimens, and other behavioral maintenance strategies.

9.7.a Expected weight loss

Recall the average weight loss following bariatric surgery is between 30-35% of body weight. In the first month after surgery, patients typically lose about a pound per day. After this, the rate slows down and gradually weight loss plateaus at 12-18 months following surgery. By 24 months, most patients are either maintaining or regaining weight. Despite large amounts of absolute weight loss, some patients may still remain overweight or obese at the peak of their loss. Even so, most patients will have large improvements in their health, function, and quality of life.

9.7.b Short-term post-op guidance

In the immediate and short-term post-operative period, patients should be instructed to seek medical attention for:

- Difficulty breathing
- Increased heart rate
- Fever > 101° F, or chills
- Severe nausea and vomiting persisting > 24 hours
- Inability to pass urine
- Sudden persistent increase in pain or discomfort not relieved by prescribed medications
- Signs or symptoms of wound infection
  - extreme redness, warmth, or pain at the site of incision
  - separation of incision edges
  - increase or change in color of drainage

Some patients may be given specific wound-care guidance from their surgical team. General care includes:

- keeping the incision clean and dry
- covering stapled incisions with plastic wrap for showering until staples are removed (usually 10-14 days post-op)
- placing steri-strips on the incision after staples are removed and leaving on until they fall off or for 7-10 days

Patients will usually return home with pain medicines prescribed by their surgeon. Common side-effects of narcotic pain medicines include drowsiness, confusion, nausea/vomiting, constipation, lightheadedness, and urinary retention.

9.7.c Nutrition guidance

Bariatric surgery becomes a less effective tool for losing weight if post-operative dietary guidance is not followed. Patients planning surgery often consult with a dietitian before and/or after surgery. General nutrition advice suitable for the general population IS NOT suitable for the post-bariatric patient. The VA Nutrition and Food Service has developed a series of patient handouts regarding the post-bariatric diet and these are available at: http://vawww.va.gov/nfs/clinical/PtEd.htm .

The focus early after surgery is on maintaining adequate fluid and protein intake. Patients begin on a clear liquid diet and gradually progress through various stages (opaque liquids, pureed foods, soft foods, regular texture). Patients usually begin oral intake within 2 days of surgery. From NPO they start with water and ice chips and progress to a clear liquid diet and gradually

proceed through the other stages. A conservative approach would be 1-2 weeks of liquids followed by 1-2 weeks of pureed foods, then soft and finally regular texture foods. Some patients will progress slower or faster through these stages. The next part of this section provides the dietary progression for an "average" post-bariatric patient.

Diet following bariatric surgery

Advance to the next stage in texture only if the patient is ready. Introduction of new foods or textures too early can contribute to discomfort and intolerances.

Stage 1: Water and Clear Liquids
2-3 oz./hr of unsweetened, decaffeinated clear liquids (water; sugar free gelatin; sugar-free lemonade; unsweetened decaf tea; Crystal Light®; sugar-free Tang®; sugar-free Koolaid®; flat diet soda; clear broth). Patient sips up to 32 oz. of fluid/day.

Stage 2: Clear and Full Liquids
Continue clear liquids while gradually adding full liquids/liquid foods as tolerated. New items are added one at a time. These items are also slowly sipped. Patient should eat or drink something every hour. After something is eaten, the patient will wait 30 minutes before beginning to sip clear, unsweetened, decaffeinated fluids. At least 6 cups of fluid must be taken in per day to avoid dehydration.

Stage 3: Pureed Foods
No more than 2-3 oz (4-6 TBSP) food at a time, 4-6 meals/day created from a variety of the below (high protein food must be included in each meal and eaten first):

- 1 oz. High Protein Food - strained baby food meat; cooked, pureed skinless turkey or chicken legs or thighs or lean cuts of beef, pork, veal or lamb (meat can be baked, broiled, boiled or stewed and then pureed); flaky fish; cooked lean ground meat or poultry; scrambled or cooked, pureed eggs; lowfat cottage cheese; tofu

- Vegetables – vegetable juice from Stage 2 can be continued; pureed/soft cooked vegetables such as broccoli, string beans, carrots, cauliflower, etc. (boil, steam or microwave and then puree)

- Starches/Whole Grains – cooked, unsweetened or artificially sweetened cereal made with nonfat milk; unsweetened dry cereal mixed with and softened by nonfat milk; mashed potato made with nonfat milk; skinless soft, baked white or sweet potato

- Milk – nonfat milk: sugar-free pudding made with nonfat milk; nonfat, artificially-sweetened yogurt

- Fruit – baby food fruit or pureed fruit (If canned fruit is used, it must be packed in light syrup or natural juices.); fruit juice is discouraged

- Clear, unsweetened, decaffeinated liquids can be continued. Liquids should not be combined with meals; preferably separate liquids by 30 minutes (before and after). Six to eight 8 oz. glasses of fluids/day needed to avoid dehydration.

Stage 4: Soft Diet
No more than 2-3 oz (4-6 TBSP) food at a time, 4-6 meals/day created from a variety of the below (high protein food must be included in each meal):

- High Protein Foods - lean meats; soft poultry without skin; soft, flaky fish, tuna, or shellfish; eggs and egg substitutes; tofu and soy protein products; lowfat or nonfat cheese, cottage cheese, ricotta cheese; beans cooked without added fat

- Vegetables - vegetable juice from Stage 2 can be continued; soft cooked vegetables; lowfat cream soups with soft-cooked vegetables

- Starches/Whole Grains - cooked, unsweetened or artificially sweetened cereal made with nonfat milk; unsweetened, dry cereal mixed with and softened by nonfat milk; mashed potato made with nonfat milk; skinless, soft, baked white or sweet potato; lowfat crackers; graham crackers; corn tortillas; bread as tolerated (Toast is usually better tolerated.)

- Milk - nonfat or lowfat milk; sugar-free pudding made with nonfat milk; nonfat, artificially sweetened yogurt

- Fruit - pureed fruit; soft fresh fruits such as banana; soft, unsweetened canned fruits

- Clear, unsweetened, decaffeinated liquids can be continued. Liquids should not be combined with meals, preferably separated by 30 minutes (before and after). Six to eight 8 oz. glasses of fluids/day needed to avoid dehydration.

General reminders for patients

- Measure portions.
- Chew solid foods thoroughly (25 chews/bite); take small bites, and slow down the pace of eating (30 minutes to eat).
- Avoid constant nibbling.
- Avoid drinking liquids just before, during, or just after meals (30 minute spacing).
- Sip; do not gulp fluids.
- Don't use a straw.
- Avoid foods or liquids with added sugar or fat or those high in sugar or fat.
- Avoid carbonated beverages, particularly within the first 6 weeks after surgery.
- Avoid alcohol for at least 6 months after surgery.
- Lactaid® or calcium-fortified soy milk can be substituted if cow's milk is not well tolerated.
- Remove all fat and skin before cooking poultry.
- Trim all visible fat from veal, beef, lamb and pork before cooking; use lean cuts.
- Bake, broil, roast, grill, boil, stew, poach or microwave instead of frying.
- Use a rack when baking, broiling or roasting to allow fat to drain from meat or other items.
- Cook with little or no added fat.

Post-surgery food intolerance

Intolerance of certain foods is common and highly individualized. Food records may assist the post-op patient with pinpointing food intolerances. With experience, veterans will learn what foods they can and cannot tolerate. Examples of foods not well tolerated include: nuts and seeds; popcorn; fresh coconut; dried fruit; peels, skins, membranes, seeds or cores of fruit; chips; cheese and pizza; salad dressings, mayonnaise, creamy sauces; red meat; dry or tough poultry or pork; bread or doughy textured starches; pasta; vegetables containing a lot of fiber; ice cream and frozen yogurt.

9.7.d Supplementation

After some types of bariatric surgery, food bypasses areas of the lower stomach and parts of the small intestine after surgery, vitamin, mineral, and protein deficiencies can occur as can bone demineralization from secondary hyperparathyroidism. Most of these nutritional deficiencies will not occur until 1-5 years postsurgery. These problems occur with much less frequency in purely restrictive procedures.

At a minimum, bariatric surgery patients should take a daily multivitamin/mineral supplement starting around the time they tolerate opaque liquids. Some veterans may tolerate a liquid version or a chewable children's version better than an "adult" tablet initially.

Depending on the type of surgery performed and other medical conditions, some patients may also require additional calcium, iron, vitamin B12, folic acid, thiamin, fat-soluble vitamin (A, D, E, K), electrolyte and/or "high-protein" supplementation. Laboratory monitoring of nutrient values can sometimes be helpful in determining need for additional supplementation. This might include:

- Blood count
- Albumin
- Ferritin or iron levels
- Plasma B12
- Vitamin D
- Electrolyte panel including magnesium, calcium
- Parathyroid hormone levels
- Bone density testing
- Others as indicated

Common supplement formulations used after bariatric include:

- High potency supplements, such as pre-natal vitamins
- 1500 mg of calcium citrate with vitamin D (Calcium should be taken separate from iron.)
- B12 taken orally, via nasal spray, or as an injection.
- Low carbohydrate, lowfat protein powder or nonfat milk added to milk or meals for additional protein supplementation.

Reinforce with veterans the importance of regularly taking prescribed vitamin/mineral supplements for the rest of their lives. Some authorities have recommended an initial serum micro-nutrient evaluation at 6 months postsurgery, and at least annually thereafter, but there is no evidence to favor any one surveillance strategy. With respect to long-term follow-up, consider nutritional deficiencies in the differential diagnosis of newly developed or otherwise unexplainable signs or symptoms (unusual rashes, easy bruising, fractures, sudden blindness).

9.7.e Medication

Patients should discuss each prescription medication with their primary care provider immediately after surgery to determine if they should be continued. Many patients will require immediate reductions in antihypertensive and/or diabetic medicines. Until a solid diet has been resumed, patients should crush all pills or take a chewable version if available. Note that time-release pills or capsules should never be crushed. Thus, a temporary switch to an alternative pill should be arranged.

In general, avoid the use of aspirin and NSAIDs in post-bariatric patients. Ulcers at the anastomotic margins can occur after surgery and may be a source of symptomatic or asymptomatic GI blood loss.

9.7.f Common symptoms after bariatric surgery

Table 17 lists some common problems after bariatric surgery and some solutions.

Table 17. Common problems with potential solutions after bariatric surgery.

Problem	Potential Solution
Nausea	• eat smaller amounts • slow down pace of eating • introduce new foods one at a time
Vomiting	• eat smaller amounts • chew food thoroughly • slow down pace of eating • introduce new foods one at a time • consider evaluation for strictures and stenosis if vomiting is particularly severe or develops 6 months or later after surgery
Intolerance for solid foods	• evaluate for stricture or stenosis
Dumping syndrome	• limit foods with added sugar and fats • eliminate known trigger foods • consume liquids separately from meals, wait at least 30 minutes before or after a meal before drinking liquids
Dehydration	• sip fluids constantly throughout the day • IV rehydration if necessary
Gallstone formation	• prevented by removal of gallbladder before or at the time of surgery • if gallbladder is intact then use a solubilizing agent for 6 months post-surgery • surgery for symptomatic cases
Lactose-intolerance	• use lactase enzyme supplements • substitute Lactaid® or soy-based products for regular dairy products
Oral thrush	• hydration • good oral hygiene (rinsing/brushing teeth after meals) • pharmacotherapy as needed
Frequent bowel movements	• food diary to attempt to identify trigger foods • reduce intake of simple sugars, fats, caffeine, or food/drinks with laxative-like effects • pharmacotherapy as needed

9.7.g Physical activity

Patients recover from surgery at different rates depending on their baseline health, the type of procedure received, and surgical complications. Walking, or other similar forms of light to moderate activity, can begin within days of surgery and can gradually increase each day. As the weight comes off, activity becomes easier and endurance builds. Building regular physical activity into the daily routine is an essential component of post-operative bariatric care.

People who have uncomplicated laparoscopic procedures can typically go back to work or resume most of their normal activities within 3-4 weeks, sometimes sooner. Patients who have had open procedures often need a longer recovery time. Patients will generally receive specific advice from their surgical healthcare team about returning to work, driving, and heavy lifting.

9.7.h Psychological effects

Few large, multi-site, systematic examinations of the psychological complications of bariatric surgery have been performed. After bariatric surgery, patients can be expected to undergo significant changes in their physical presentation. For some patients, this may produce unanticipated changes in self-image, interpersonal relationships, and other aspects of psychosocial functioning. Many studies have found a positive impact on perceived self-control (particularly for self-control of eating), self-esteem, and health-related quality of life. Some negative psychological consequences also exist. These include: non-adherence to the post-bariatric regimen (particularly not engaging in recommended exercise regimen or inappropriate dietary intake), depression, sexual concerns, and relationship problems.

Bariatric surgery patients typically go through a process of adjusting their diet, adjusting to significant changes in body habitus and self-image, and adjusting to potentially good and bad changes in their daily functioning. For example, many extremely obese patients report that they feel invisible to others with regard to romance. Consider how different it might be to suddenly become the object of attention after many years of “invisibility.” Although many lifestyle changes related to bariatric surgery are positive, all change (even positive change) is typically associated with some level of personal stress.

As obesity is a multifactorial problem, the recovery from obesity is also a complex multifactorial process. Both for the short and long-term, support from staff including behavioral health professionals if necessary, can assist with coping with changes, complications, and maintenance. VA healthcare staff need to be sensitive to all of these behavioral issues and be prepared to support patients directly or by referral for behavioral health counseling.

Chapter 10
Weight Loss Maintenance

One of the most difficult aspects of health behavior change is that it is often quite simple to make an initial change but very hard to maintain that change. For this reason, the *MOVE!* Program is not just a weight loss program, it is a weight management program designed to assist patients in making long-term lifestyle changes that maintain weight and fitness over a lifetime. Research has shown that certain strategies can facilitate health behavior change maintenance. This chapter presents those concepts and methods to help you assist patients with maintaining weight loss.

10.1 Background

Virtually all health behavior change programs have fairly high recidivism/relapse rates. This is well known for smoking cessation, substance abuse/dependence and is also true for weight management. Current recidivism rates for diets or brief weight management programs approach 95% at 2 years. Again, the *MOVE!* Program is not a weight loss program; it is a weight management program designed to assist patients in making long term behavioral, nutritional, and physical activity changes.

Relapse rates for weight loss programs are higher than smoking cessation and substance abuse/dependence rates. There are some clear reasons for this. First, successful long-term weight loss requires changing two behaviors: eating and physical activity. Second, it may be easier for people to "quit" something that isn't a requirement. Research has shown that is actually very difficult for folks who are addicted to simply cut back on smoking or drinking. For addicts, it may be easier to just simply avoid these problem behaviors altogether. Unfortunately, one cannot just stop eating, and therein lies a significant barrier to weight loss. We know that smoking and problematic drinking are complex problems involving social, behavioral, thinking/belief, and biological factors. One's weight is likely an even more complex interaction of these same factors and others. Lastly, getting patients to begin a new healthy behavior (e.g., increasing physical activity) may be more difficult than assisting them with stopping a harmful behavior.

To be successful in weight management, a patient needs to simultaneously manage their eating, their thinking and behavior; and their physical activity. As healthcare professionals, we have only limited ability to affect other factors such as our culture, advertising, the wide availability of calorie-rich foods, home and work environment, social factors, and a myriad of other known and unknown factors.

The good news is that there are strategies that are effective for helping patients maintain new behaviors. Furthermore, there is a core of patients who lose weight and maintain ground, and these patients have been studied carefully to find out how they do this. It is also important to note that even those successful at losing weight and maintaining weight loss may regain up to 50% of their initial weight loss; thus, some weight regain should not be seen as a failure.

10.1 a Causes of weight regain

People who have lost weight usually regain that weight because they stop doing those things they did to lose weight in the first place. Once the "big concentrated effort" is finished and their weight goal has been achieved, people often stop recording their food intake, slowly revert to former eating habits, and start skipping opportunities for physical activity. This may be a "lapse" (partial relapse) initially, but often leads to a full-blown "relapse" if not stopped. Clinical researchers have found it helpful to study relapses and provide patients tools for preventing relapse.

10.1.b Importance of active relapse prevention

Specific and ongoing attention to relapse prevention is almost always necessary to prevent weight regain. Patients rarely engage in active relapse prevention efforts without prompting. Clinicians must actively work to help *MOVE!* patients institute relapse prevention habits and maintain those habits. To be effective, relapse prevention efforts should be started and emphasized long before a patient's goal weight is reached. A basic rule of thumb with relapse prevention is "forewarned is forearmed." Helping patients think through future problems and to be prepared with tools or tricks to master these problems is what relapse prevention is all about.

Everyone attempting a healthy behavior change has slips or lapses. Unfortunately, the lapses themselves pose an ever greater risk of relapse due to the negativistic thinking that can go with a slip. This is so common that clinicians have named this the abstinence-violation effect. Folks who slip tend to feel like failures. They feel guilty, and they begin to question their confidence for making this change. This extra baggage with a slip makes a full relapse even more likely. Patients need to be aware of what slips are and what to do to limit their impact to avoid the abstinence-violation effect.

In the event of a "lapse" or a slip, patients should be helped to put the relapse in a broad perspective ("it's just a temporary dip in the trend line"). One should not make too much of a slip. Avoid giving permission for lapses but remember that successful folks also have temporary lapses. Help patients avoid self-recrimination or other negative emotional reactions and advise patients not to give up because they briefly lapsed. Help them engage in realistic positive thinking and encourage them to immediately resume appropriate weight control habits. Lastly, turn the slip into a positive – figure out why the slip occurred and plan to manage a similar situation in a different way in the future.

10.2 Weight loss maintenance strategies

10.2.a Continued contact

The most important strategy may be urging patients to remain in periodic contact with their *MOVE!* healthcare team for ongoing support, accountability, and encouragement. Contact may be by telephone or in person and should occur as often as needed, ideally every 3-6 months.

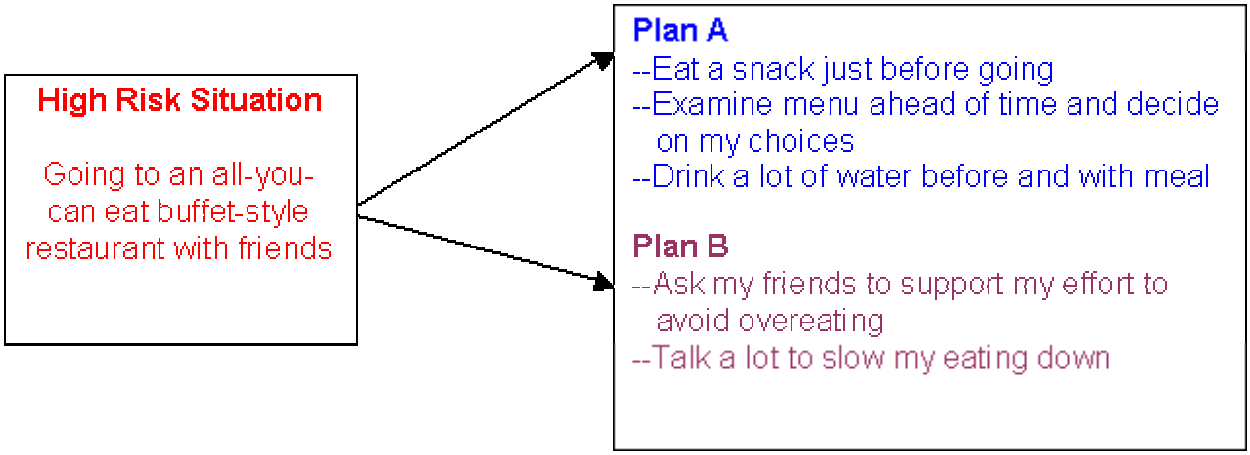
10.2.b Get support from others

Ongoing support from family, friends, and other trusted people is also very helpful because it provides additional accountability, encouragement, and reinforcement. Encourage patients to have their support persons ask them about their progress and offer encouragement.

10.2.c Plan for high-risk situations

Being prepared to manage tempting situations greatly helps to maintain weight control behaviors. Patients should be encouraged to make an actual written list of their overly tempting or "high risk" situations, and make both a primary "plan A" and a secondary "plan B" for effectively managing each of those situations. See Figure 29.

Figure 29. Planning for High Risk Situations



10.2.d Self-monitoring

Maintaining written logs/journals is a helpful tool for losing weight as well as a primary way to maintain weight control behaviors in the long run. Use logs to record:

- food intake
- minutes of physical activity
- weight

Encourage patients to continue this practice at least twice each week on an ongoing basis as a system of checks on their behavior.

10.2.e Environmental cues

Establishing salient "cues" or signals for weight control behaviors and prominently displaying them in one's environment helps both with initial and with sustained weight loss. Environmental cues might include:

- A sign on the refrigerator and/or the table (e.g., Eat very s-l-o-w-l-y; enjoy your meal!)
- A timer to control speed of eating
- Smaller plates
- Healthy snacks out on the kitchen counter

- Weight chart up on kitchen wall or refrigerator
- Food and physical activity logs out on counter
- Written list of positive changes accomplished
- Posted list of reasons for maintaining weight
- Walking shoes/sneakers out in a visible location

10.2.f Specific daily written goals

Achievable, realistic, daily goals motivate weight control behavior. Patients should be encouraged to write out specific goals for each day or for a week with a place to check them off when achieved. Examples might be: "I will walk a total of 45 minutes each day this week." or "I will eat a healthy breakfast such as whole grain cereal with fruit each day this week.".

10.2.g Positive self-reinforcement

Positive reinforcement helps maintain behavior. Patients need to be able to reinforce themselves. Patients should be encouraged to set up and maintain a self-reinforcement system. Even putting a gold star on their food record, physical activity log, or weight record can be reinforcing! Here are some examples of self-reinforcement:

- "If, and only if, I walk an average of 7000 steps per day this week, I will watch my favorite TV show on Friday night."
- "If I accurately record all my food intake this week, I can skip writing it down on Sunday."
- "If I take a 30 minute walk this morning, I can go out to lunch with my friends at noon."

10.2.h Alternative pleasures

Focusing upon non-food sources of pleasure helps maintain control of eating. Food should not be the only source of pleasure in life. Patients should be assisted with developing other pleasures they can experience and focus on. Alternative pleasures might include various hobbies, social activities, gardening, bicycling, tennis or other sports, reading, camping, travel, volunteer activities, and so on. Pleasuring skills include planning in advance for pleasurable experiences, such as playing golf on Sunday, going fishing, etc. Help patients learn to "stop and smell the roses" by making themselves acutely aware of the many small pleasures of everyday life, such as sleeping, taking a shower, talking with a friend, admiring beautiful things and places.

10.2.i Positive thinking

A habit of positive thinking helps maintain weight control behaviors and resist temptations. Patients can be prepared for this by developing a mental habit of becoming aware of negative thoughts as they occur and purposely changing those thoughts to more positive ones. As practice, patients can be asked to describe examples of their negative thinking and then helped to replace those thoughts with positive ones. Writing out negative thoughts along with the corresponding counteractive positive thoughts helps build the skill. Patients might also be urged to build cues for positive thinking into their environment, such as "positive affirmation" notes, making and posting a list of what is going well in their life, etc.

Negative Thought	Positive Counteracting Thought
I feel SO deprived- I can't eat everything I want until I'm full ….	I don't want to eat until I'm stuffed any more- I feel MUCH better when I eat just enough to be reasonably satisfied…

10.2.j Establish weight and behavior "alarms"

Having an "alarm" system will help patients stop an undesirable trend in their behavior or weight. Encourage patients to establish preplanned limits for specific behaviors and a specific weight beyond which they will start a preplanned corrective action. For example: "If I reach 230 lbs, I will start attending *MOVE!* group sessions again until I have my weight back under control.".

10.3 Strategies from the National Weight Control Registry

The National Weight Control Registry tracks people who have successfully lost at least 30 lbs and maintained that loss for at least 1 year. Most participants are middle-aged white women; thus, conclusions drawn may not be entirely applicable to the VA population. Most participants in the registry had unsuccessfully attempted weight loss in the past. When asked what made them finally successful, most reported that they had greater social or health reasons for losing weight and were more committed to making behavior changes.

Characteristics that weight loss maintainers in the National Weight Loss Control Registry have in common are the following:

- Nearly 90% use a combination of diet and exercise to maintain weight loss; 9% use diet only and 1% use exercise only
- Most common dietary changes include lowering calorie and fat intake, limiting portion sizes, and eating a variety of foods
- Most eat breakfast daily
- Most engage in a high level of physical activity averaging about 60-90 minutes per day
- Most report self-monitoring of weight; at least 75% weigh themselves weekly
- Walking is the most common type of physical activity reported by maintainers, but was often combined with other forms of planned exercise (aerobic classes, biking, swimming)
- The average number of steps per day when walking was quantified with pedometers was 11-12,000 steps/day

In the registry, people who regained weight were less likely to engage in regular physical activity, limit fat intake, and maintain diet consistency over weekends and holidays (i.e., they adhered more strictly to diet during the weekdays).

10.4 Maintaining contact

Patients who maintain their weight typically maintain an ongoing relationship with their healthcare team. As a staff member, one of the most important things you can do to help patients maintain their weight loss is to:

- Show your support by following up with the patients with telephone or office visits.
- Find out how they are doing on every contact.
- Be supportive, and help patients manage slips or relapses.
- Obesity is every bit as important as managing other chronic diseases. We wouldn't think of forgetting to discuss blood sugar in a diabetic, even if they are under good control.
- Be prepared to help a patient back into more aggressive treatment if they are losing ground.
- Remember that weight management is difficult. Acknowledge and praise patients for their efforts and successes.

Appendices

Appendix 1 - *MOVE!23* Patient Questionnaire (Pen and Paper version)…….. p 212

Appendix 2 - List of Patient Handouts Available on the *MOVE!* Website…….. p 222

Appendix 3 – List of Group Modules Available on the *MOVE!* Website……. p 224

Appendix 1

MOVE!23 Patient Questionnaire

Paper and pencil version

VA Staff Complete This Section

VA FACILITY:_____

NAME:_____

DATE:_____

SSN: ____-____-____

Height:_____(feet)_____ (inches)

Weight:_____(lbs)

(Please enter measured height and today's weight – BMI will be calculated from this measurement. The standard of care is to measure height with shoes off).

Date of Birth: Month____ /Day____ /Year____

Male or Female (Circle one.)

Ethnicity/Race (It is very important that you ask the patient their race, do not assume their race given their physical presentation):

Ethnicity

Do you consider yourself to be Hispanic or Latino? Select one.

□ Hispanic or Latino
A person of Mexican, Puerto Rican, Cuban, South or Central American, or other Spanish culture or origin, regardless of race

□ Not Hispanic or Latino

□ I do not wish to provide this information.

Race

What race do you consider yourself to be? Select one or more of the following.

□ American Indian or Alaskan Native
A person having origins in any of the original peoples of North, Central or South America, and who maintains tribal affiliation or community attachment

□ Asian
A person having origins in any of the original peoples of the Far East, Southeast Asia, or the Indian subcontinent, including, for example, Cambodia, China, India, Japan, Korea, Malaysia, Pakistan, the Philippine Islands, Thailand, and Vietnam

□ Black or African American
A person having origins in any of the black racial groups of Africa

□ Native Hawaiian or Other Pacific Islander
A person having origins in any of the original peoples of Hawaii, Guam, Samoa, or other Pacific Islands

□ White
A person having origins in any of the original peoples of Europe, the Middle East, or North Africa

□ I do not wish to provide this information.

Check the option below that applies.

Are you completing this questionnaire (*MOVE!23*)…

□ for a veteran?
□ for yourself as an employee?

Please complete the following questionnaire.
(All information is confidential and subject to applicable laws regarding privacy of patient records.)

1. I consider myself to be (check one):

   d. _____ Underweight for my height and age
   e. _____ Normal weight for my height and age
   f. _____ Overweight for my height and age

2. In general, would you say that your health is:
   a. _____ Excellent
   b. _____ Very Good
   c. _____ Good
   d. _____ Fair
   e. _____ Poor

3. Please indicate (with a check mark to the left) any of the following that apply to you:

_____ Shortness of breath at rest
_____ Chest pains not previously evaluated by your physician
_____ Active infection of any kind
_____ Hernia in the groin or belly area
_____ Retinal hemorrhage (bleeding in the back of the eye)
_____ Loss of balance because of dizziness or passing out
_____ Any chronic medical problem that has recently been out-of-control, unstable or flared up
_____ Arthritis or joint pain
_____ Back pain or spinal disc disease
_____ Osteoporosis or bone disease
_____ Amputation
_____ Spinal cord injury
_____ Lung disease such as emphysema, COPD, or asthma
_____ Heart disease such as heart failure, heart attack or angina, heart surgery or angioplasty, irregular heartbeat, implanted defibrillator or pacemaker, heart valve problems
_____ Poor blood circulation in the legs
_____ Stroke or TIAs (mini-strokes) or carotid artery surgery in the neck
_____ Diabetes – even if controlled by medication or diet
_____ High blood pressure - even if controlled by medication or diet
_____ High blood cholesterol - even if controlled by medication or diet
_____ Someone in your immediate family with heart problems at an age younger than 50

Please indicate any of the following that apply to you:

_____ Too much stress
_____ General unhappiness
_____ Depression
_____ Anxiety problems or nervousness
_____ Family or relationship problems
_____ Bipolar disorder (Manic depressive disorder)
_____ Schizophrenia
_____ Post traumatic stress disorder (PTSD)
_____ Obsessive/compulsive disorder
_____ Eating disorder/binge eating/anorexia/bulimia
_____ Tobacco Use/Smoking
_____ Substance Abuse or Dependence
_____ None of these

4. Have you tried to lose weight in the past? Yes No

If so, what of the following options have you tried in order to lose weight? Check all that apply.

a. ____ Some form of dieting, that is eating differently from the way you usually eat for the sake of losing weight
b. ____ Avoiding particular foods or food groups
c. ____ Physical exercise, such as walking, swimming or calisthenics
d. ____ Prepackaged meals
e. ____ Meal replacements in bar, powder, liquid, tablet/pill or water form
f. ____ Fasting for 24 hours or longer
g. ____ Skipping meals
h. ____ Hypnosis
i. ____ Comprehensive weight loss program with dietary changes, physical activity, and behavioral counseling
j. ____ Any other kind of weight loss program that does **NOT** provide comprehensive treatment (dietary changes, physical activity, and behavioral counseling)
k. ____ Keeping a log or journal for eating or exercise
l. ____ Causing yourself to vomit after you eat
m. ____ Cosmetic procedure such as liposuction or other
n. ____ Weight loss medical procedure such as gastric bypass, gastric banding, wiring of your jaw or other
o. ____ Taking a prescription medication to lose weight
p. ____ Taking an over the counter (OTC) medication; vitamin, mineral, or nutrient supplement; herbal supplement; naturopathic or alternative medicine preparation or supplement to lose weight
q. ____ Smoking to control weight
r. ____ Other

5. Are you trying to lose weight now? Yes No

If so, what does your current weight loss plan include? Check all that apply.

a. ____ Some form of dieting, that is eating differently from the way you usually eat for the sake of losing weight
b. ____ Avoiding particular foods or food groups
c. ____ Physical exercise, such as walking, swimming or calisthenics
d. ____ Prepackaged meals
e. ____ Meal replacements in bar, powder, liquid, tablet/pill or water form
f. ____ Fasting for 24 hours or longer
g. ____ Skipping meals
h. ____ Hypnosis
i. ____ Comprehensive weight loss program with dietary changes, physical activity, and behavioral counseling
j. ____ Any other kind of weight loss program that does **NOT** provide comprehensive treatment (dietary changes, physical activity, and behavioral counseling)
k. ____ Keeping a log or journal for eating or exercise
l. ____ Causing yourself to vomit after you eat
m. ____ Cosmetic procedure such as liposuction or other
n. ____ Weight loss medical procedure such as gastric bypass, gastric banding, wiring of your jaw or other
o. ____ Taking a prescription medication to lose weight
p. ____ Taking an over the counter (OTC) medication; vitamin, mineral, or nutrient supplement; herbal supplement; naturopathic or alternative medicine preparation or supplement to lose weight
q. ____ Smoking to control weight
r. ____ Other

6. Select the answer that <u>best</u> describes your rate of weight gain over the years.

e. _____ I have been overweight since childhood (before age 18).
f. _____ I have gained weight gradually over the years.
g. _____ I have gained most of my excess weight in a short period of time.
h. _____ I have gained and lost weight many times over the years (“yo-yo”).

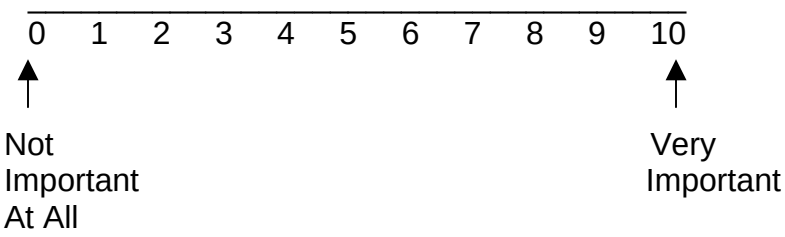
7. Select the answer that best describes your family:

a. _____ As a group, my family is not overweight or obese.
b. _____ As a group, some members of my family are overweight or obese.
c. _____ As a group, most members of my family are overweight or obese.

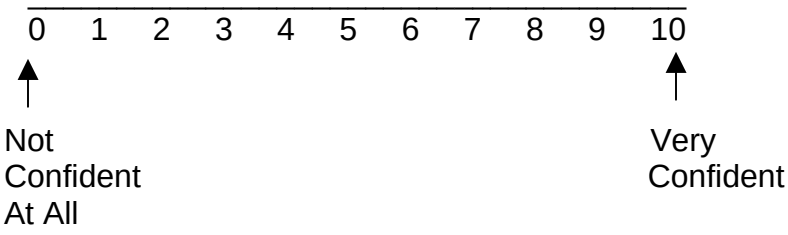
8. How much can you rely on family or friends for support and encouragement?

d. _____ A lot
e. _____ Somewhat
f. _____ Not at all

9. How important is controlling your weight to you personally? Please circle the number that applies. Please do not place a circle in the space between numbers.



10. How confident are you that you can successfully change your eating and physical activity to control your weight? Please circle the number that applies. Please do not place a circle in the space between numbers.



11. Check the statement that **most closely** applies to you:

e. _____ I am not considering trying to control my weight at this time.
f. _____ I am considering trying to control my weight sometime within the next 6 months**.**
g. _____ I am ready to make some changes to control my weight.
h. _____ I am actively working on controlling my weight at this time.
e. _____ I have been continuously and successfully doing things to control my weight for more than the last 6 months.

12. How much weight do you think you realistically **could lose** in one year?

f. _____ 10 lbs or less
g. _____ 11 – 25 lbs
h. _____ 26 – 50 lbs
i. _____ 51 - 100 lbs
j. _____ more than 100 lbs

13. How satisfied are you with the appearance of your body?

f. _____ Very satisfied
g. _____ Moderately satisfied
h. _____ Neither satisfied or dissatisfied
i. _____ Moderately dissatisfied
j. _____ Very dissatisfied

14. Do any of the following have anything to do with your being overweight?
Check all that apply to you.

a. _____ Eating because of emotions or stress
b. _____ Family or relationship problems
c. _____ Boredom
d. _____ Loneliness or Loss of loved one
e. _____ Eating too much
f. _____ Poor food choices or habits
g. _____ Not getting enough physical activity
h. _____ Difficulty with self control
i. _____ Hungry all the time
j. _____ Feeling bad about myself
k. _____ Love to eat
l. _____ Quitting tobacco use
m. _____ Pregnancy/Childbirth
n. _____ Illness or injury
o. _____ Medications led to weight gain
p. _____ Other
q. _____ None of the above

15. What do you think may get in the way of **changing** your **eating** habits? Check all that apply to you.

a. _____ Eating food from restaurants, fast food places, convenience stores, vending machines
b. _____ Person who prepares my food is uncooperative or unsupportive
c. _____ Too much high calorie food available at home or work
d. _____ Too little time to prepare and eat healthy food
e. _____ Too little money to buy healthy food
f. _____ Feeling hungry much of the time
g. _____ Used to eating a certain way
h. _____ Difficulties such as stress or depression
i. _____ Being with others who overeat
j. _____ Don't know how
k. _____ Other
l. _____ Nothing should get in the way

16. How many times a **day** do you typically eat, including snacks?

f. _____ 1 time a day
g. _____ 2 times a day
h. _____ 3 times a day
i. _____ 4 times a day
j. _____ 5 or more times each day

17. How many times per week do you eat at restaurants or buy 'take out' food?

Please indicate on the line below the number of times between 0 and 21. Consider breakfast, lunch and supper 7 days a week for a total of 21 meals for which restaurant or take out food could be eaten.

_____

When you eat out, do you find that you overeat or eat higher calorie foods?

a. _____ Yes
b. _____ No

18. How much sugar-sweetened soda, tea, juice, juice-drinks, or other beverages do you drink **most days**?

a. _____ I don't drink drinks sweetened with sugar or juice.
b. _____ 1 – 2 cups, cans, small bottles or drink boxes per day
c. _____ 3 or more cups, cans, small bottles or drink boxes per day

19. Do you drink alcoholic beverages (such as beer, malt liquor, wine, wine coolers, hard/distilled liquor)?

c. _____ Yes
d. _____ No

20. How **fast** do you usually eat?

e. _____ I eat slowly
f. _____ I eat at a moderate pace
g. _____ I eat fast

21. On average, how often have you eaten extremely large amounts of food at one time and felt that your eating was out of control at that time?

f. _____ Never
g. _____ Less than 1 time per week
h. _____ 1 time per week
i. _____ 2 to 4 times a week
j. _____ 5 or more times a week

22. What do you think may get in the way of **changing** your **physical activity** habits? Check all that apply to you.

a. _____ Too little time
b. _____ Too little money
c. _____ Safety concerns
d. _____ No place to walk or be active
e. _____ No transportation
f. _____ Lack of support or encouragement from others
g. _____ Difficulties such as stress, depression, etc.
h. _____ Do not like to exercise
i. _____ Daily habits or routines that do not include exercise
j. _____ Pain
k. _____ Amputation
l. _____ Back problems
m. _____ Arthritis
n. _____ Muscular problems
o. _____ Heart or lung disease
p. _____ Joint problems
q. _____ Spinal cord injury
r. _____ Too tired
s. _____ Job or work schedule
t. _____ Other
u. _____ Nothing should get in the way

23. This next question asks about your physical activity habits. There are 2 types of activity to consider:

- Moderate physical activities cause light sweating and a slight to moderate increase in breathing or heart rate. Examples include brisk walking, bicycling, vacuuming, gardening, and golfing without a cart.

- Vigorous activities cause heavy sweating and large increases in breathing or heart rate. Examples include running, aerobic classes, heavy yard work, and briskly swimming laps.

a. How many days per week do you do moderate activities for at least 10 minutes at a time? Please circle the appropriate number. Please do not place a circle in the space between numbers.

0 1 2 3 4 5 6 7

b. On days when you do moderate activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

a. _____ 10-19 minutes
b. _____ 20-29 minutes
c. _____ 30-59 minutes
d. _____ >=60 minutes

c. How many days per week do you do vigorous activities for at least 10 minutes at a time? Please circle the appropriate number. Please do not place a circle in the space between numbers.

0 1 2 3 4 5 6 7

d. On days when you do vigorous activities for at least 10 minutes at a time, how much total time per day do you spend doing these activities?

a. _____ 10-19 minutes
b. _____ 20-29 minutes
c. _____ 30-59 minutes
d. _____ >=60 minutes

Appendix 2
List of *MOVE!* Patient Handouts

(Note that at the time of publication these handouts were undergoing revision so may be different from what is currently listed on the *MOVE!* website.)

Standard

S01 - Basics Of Weight Control
S02 - Set Your Weight Loss Goals
S03 - Pedometer Guide
S04 - Changing My Eating Habits
S05 - Increasing My Physical Activity
S06 - Making Healthy Food Choices
S07 - F.I.T.T
S08 - Food and Physical Activity Log
S09 - Change Your Behavior
S10 - Change Your Thinking

Behavioral Health

B01 - Old Habits Die Hard
B02 - So, You 're Not Ready Yet
B03 - So, You're Thinking About It
B04 - Getting Ready To Lose Some Weight
B05 - Yes! Now You 're Doing It
B06 - Yes! You Can Keep That Weight Off
B07 - Attitude
B08 - Body Image
B09 - Coping With Medical Problems
B10 - Coping With Pain
B11 - Weighing Your Options
B12 - Emotions And Your Weight
B13 - Boost Your Confidence
B14 - Guiding Thoughts And Images
B15 - Hungry All The Time
B16 - Tempted
B17 - Irrational Ideas About Eating
B18 - Motivate
B19 - Dealing with Boredom
B20 - Planning Ahead
B21 - Pleasure
B22 - Psychiatric Conditions
B23 - Quit Smoking Gain Weight
B24 - Control Yourself
B25 - Self-Esteem
B26 - Slow Down You Eat Too Fast
B27 - Involving Others In Your Weight Control Program
B28 - Stress, Anxiety, Depression
B29 – Take Control of Your Thoughts, Feelings, and Behavior
B30 - Not Enough Time
B31 - What If My Partner Or Spouse Isn 't Helpful
B32 - Wellness
B33 - What Is Mental Health
B34 - Eating With Others

Nutrition

N01 - All Foods Can Fit
N02 - Calcium
N03 - Dairy
N04 - Hunger and Fullness
N05 - Eating At Home
N06 - Eating Well On A Budget
N07 - Fast Food Alternatives
N08 - Fat Out Flavor In
N09 - What Are The Types Of Fat
N10 - Food Nutrition Label
N11 - Food Label Quiz
N12 - Healthy Plate
N13 - Fruit
N14 - Food Record
N15 - Sodium
N16 - Special Occasion Eating
N17 - Liquid Calories
N18 - Make It Quick
N19 - Making A Meal Plan Work In A Family
N20 - Protein
N21 - Serving Sizes
N22 – Be a Frequent Feeder
N23 - Nutrient Label Claims
N24 - Recipe Smart Stand-Ins
N25 - Restaurant Tips
N26 - Snack Attack
N27 - Spice It Up
N28 - Grains
N29 - Sweet Suggestions
N30 - Vegetables
N31 - Water Drink Up

Physical Activity

P01 - Barriers To Physical Activity
P02 - Benefits Of Regular Exercise
P03 – Calories Burned During Physical Activities
P04 - Warm-up, Cool Down and Stretch
P05 - Indoor Activities
P06 - Exercise Can Be Fun
P07 - Exercise On A Budget
P08 - How Hard Should I Exercise
P09 - How To Take Your Heart Rate
P10 - If You Sit Or Stand *MOVE !*

P11 - Lack Of Time For Exercise
P12 - Making A Good Fit
P13 - Prevention Tips For Sore Muscles Or Cramps
P14 - Physical Activity And Your Safety
P15 - Walk
P16 - Strength Training Benefits
P17 - Tips For Cold Weather Activity
P18 - Warm Weather Exercise Guidelines
P19 - When To Stop Exercising
P20 - Why Is Physical Activity Good For My Heart
P21 - Activity Limitations For Certain Medical Conditions
P22 - Increasing Physical Activity For Veterans With Physical Or Medical Limitations
P23 - Activities To Fit Your Lifestyle
P24 - Types Of Physical Activity
P25 - Physical Activity/Pedometer Log
P26 - Physical Activity Pyramid
P27 - Physical Activity And Medications
P29 - Planned Physical Activities
P30 - Sample Stretches
P31 - Sample Aerobic Training Plan for Beginners
P32 - Sample Strength Activity Plan for Beginners
P33 - Sample Flexibility Activity Plan for Beginners

Miscellaneous

M01 - Skip the Fad Diet
M02 - Handling Weight Plateaus
M03 - Medications Can Cause Weight Gain
M04 - Quitting Smoking Is A Healthy Choice
M05 - 10 Health Gains from a 10% Weight Loss
M06 - B M I - Chart

Appendix 3
List of Group Session Modules Available on *MOVE!* Website

Behavior

GB01 - Coping With Stress Leader
GB02 - Decisional Balance Leader
GB03 - Great American Conspiracy Leader
GB04 - Guiding Thoughts Leader
GB05 - Impulse Control Leader
GB06 - Irrational Ideas Leader
GB07 - Motivation Leader
GB08 - Overcoming Self Defeating Thoughts Leader
GB09 - Plan Ahead Leader
GB10 - Pleasure Leader
GB11 - Self Control Leader
GB12 - Self Esteem Leader
GB13 - Wellness Leader
GB14 - What Is Mental Health Leader

Nutrition

GN01 - Cook It Light And Quick Leader
GN02 - Dining Out Leader
GN03 - Fast Foods Leader
GN04 - Food Pyramid Leader
GN05 - Be A Frequent Feeder Leader
GN06 - How To Eat Better Leader
GN07 - Obesity And Your Health Leader
GN08 - Reading Food Labels Leader
GN09 - Snacks And Sweets Leader
GN10 - Water Leader
GN11 - Weight Management Attitude Leader
GN12 - Weight Management Exercise Leader
GN13 - Weight Management Lifestyle Changes Leader
GN14 - Weight Management Nutrition Knowledge Leader

Physical Activity

GP01 - Active Feet Leader
GP02 - Barriers To Physical Activity Leader
GP03 - Benefits Of Regular Exercise Leader
GP04 - Exercise On A Budget Leader
GP05 - F I T T Leader
GP06 - How To Take Your Pulse Leader
GP07 - If You Sit Or Stand Leader
GP08 - Lack Of Time For Exercise Leader
GP09 - Prevention Tips For Sore Muscles Or Cramps Leader
GP10 - When To Stop Exercising Leader

References

ACC/AHA 2002 guideline update for exercise testing: summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (Committee to Update the 1997 Exercise Testing Guidelines). *Circulation*. 2002 Oct 1;106(14):1883-92.

Abraham S. Obese and overweight adults in the United States. Hyattsville, MD: *Vital and Health Statistics*, Series II, No 230; 1983. DHHS Pub. No. PHS 83-1680.

American College of Sports Medicine. *ACSM's Exercise Management for Persons with Chronic Diseases and Disabilities.* Illinois: Human Kinetics; 1997.

American College of Sports Medicine. *ACSM's Resource Manual for Guidelines for Exercise Testing and Prescription.* New York: Lippincott Williams & Wilkins; 2001.

American College of Sports medicine. *ACSM's Guidelines for Exercise Testing and Prescription.* 6th ed. Philadelphia. Lippincott Williams & Wilkins; 2000.

American Dietetic Association Manual of Clinical Dietetics. 1996:16.

Arterburn D. Obesity Chapter in *BMJ Clinical Evidence*. Volume 12. December 2004: 160-162.

Balady GJ, et al. Recommendations for Cardiovascular Screening, Staffing, and Emergency Policies at Health/Fitness Facilities. AHA/ACSM Scientific Statement. *Circulation*. 1998;97:2283-2293.

Bandura A. *Social Foundations of Thought and Action: A Social Cognitive Theory*. Englewood Cliffs, NJ: Prentice Hall; 1986.

Breen HB, Ireton-Jones CS. Predicting Energy Needs in Obese Patients. *Nutrition in Clinical Practice*. 2004;19(3):284-289.

CDC Division of Nutrition and Physical Activity Webpages. CDC Web site. Available at: www.cdc.gov/nccdphp/dnpa/physical/index.htm.

Cowan GSM, Hiler ML, Buffinton, C. Criteria for Selection of Patients for Bariatric Surgery. *Euro Jour of Gastro & Hep.* 1999;11:69-75.

Cummings S, Parham ES, Strain GW. Position of the American Dietetic Association: Weight Management. *J Am Diet Assoc.* 2002;108:1146-1155.

Curtis JP, Selter JG, Wang Y, Rathore S, Jovin IS, Jadbabaie F et al. The Obesity Paradox: Body Mass Index and Outcomes in Patients With Heart Failure. *Arch Int Med*. 2005;165:55-61.

Dansinger ML, Gleason JA, Griffith JL, Selker HP, Schaefer EJ. Comparison of the Atkins, Ornish, Weight Watchers, and Zone Diets for Weight Loss and Heart Disease Risk Reduction. *JAMA* 2005. 293(1):43-53.

Das S, Kinsinger LS, Yancy WS, Wang A, Ciesco E, Burdick M, Yevich SJ. Obesity Prevalence Among Veterans at Veterans Affairs Medical Facilities. *Am J Prev Med*. 2005;28(3):291-294.

Dunn C, Rollnick, S. *Lifestyle Change-Mosby Rapid Reference*. Elsevier Limited. London, UK; 2003.

Duyff RL. *American Dietetic Association Food and Nutrition Guide.* 2nd edition. Hoboken, NJ: John Wiley & Sons, Inc.; 2002.

Elkins G, Whitfield P, Marcus J, Symmonds R, Rodriguez J, Cook T. Noncompliance with behavioral recommendations following bariatric surgery. *Obes Surg.* 2005;15:546-551.

Elliot K. Nutritional considerations after bariatric surgery. *Crit Care Nurs Q*. 2003 Apr-Jun; 26(2):133-8.

Energy and protein requirements. World Health Organization Web site. Available at: http://www.fao.org/DOCREP/003/AA040E/AA040E00.HTM.

Engle GL. The need for a new medical model: A challenge for biomedicine. *Science* 1977;196:129-136.

Example dialogs reprinted in slightly modified form with permission from: Dunn C, Rollnick S. *Lifestyle Change-Mosby Rapid Reference*. Elsevier Limited. London, UK; 2003.

Forbes BG, Welle SL. Lean body mass in obesity. *International Journal of Obesity.*1983;7:99.

Foster GD, McGuckin B. Nondieting approaches: principles, practices, and evidence. In: Wadden TA, Stunkard AJ, eds. *Handbook of Obesity*. New York, NY: Guilford Press; 1993:506-512.

Foster GD, Nonas CA, eds. *Managing Obesity: A Clinical Guide*. American Dietetic Association. 2004.

Freedman M, et al. Popular Diets: a scientific review. *Obes Res.* 2001;9(Suppl 1):1S.

Fujioka K. Follow-up of Nutritional and Metabolic Problems after Bariatric Surgery. *Diabetes Care*. 2005;28(2):481-484.

Gallagher D, et al. Healthy percentage body-fat ranges: an approach for developing guidelines based on body mass index. *Am J Clin Nutr*. 2000;72:694.

Garrow JS. Composition of weight loss during therapeutic dietary restriction. In: Kral JG, Van Itallie TB, eds. *Recent Developments in Body Composition Analysis; Methods and Applications*. London, England:Smith-Gordon; 1993:121-127.

Gastrointestinal Surgery for Severe Obesity. Reprinted from NIH Cons Dev Conf Cons Stmnt. 1991; Mar 25-27:9(1).

Gauer RL, O'Connor FG. *How to Write an Exercise Prescription*. Department of Family Medicine, Uniformed Services University of the Health Sciences. Available at www.hooah4health.com/toolbox/exRx/default.htm.

Grillo CM, Masheb RM, Brody M, Toth C, Burke-Martindale CH, Rothschild, BS. Childhood maltreatment in extremely obese male and female bariatric surgery candidates. *Obes Res*. 2005;13(1):123-30.

Harris JA, Benedict FG. *A Biometric Study of Basal Metabolism in Man.* Carnegie Institution of Washington, Philadelphia: J.B. Lippincott; 1919:190-227. Pub. No. 279.

Hellerstein MK. No common energy currency: de novo lipogernesis as the road less traveled. *Am J Clin Nutr*. 2001;74:707.

Helm KK, Klawitter B. *Nutrition Therapy Advanced Counseling Skills*. Lake Dallas, TX: Helm Seminars; 1995.

Hirsch J. Role and benefits of carbohydrate in the diet: key issues for future dietary guidelines. *Am J Clin Nutr*. 1995;61:996S.

Institute of Medicine of the National Academies. *Dietary reference intakes for energy, carbohydrate, fiber, fat, fatty acids, cholesterol, protein, and amino acids*. Washington, DC; 2002. The National Academies Press. www.nap.edu.

Jain A. *What works for obesity? A summary of the research behind obesity interventions.* BMJ Publishing Group. 30 April 2004.

Jensen MD. Research techniques for body composition assessment. *J Am Diet Assoc*. 1992;55:641.

Kushner RF. *Roadmaps for Clinical Practice: Case Studies in Disease Prevention and Health Promotion—Assessment and Management of Adult Obesity: A Primer for Physicians.* Chicago, Ill: American Medical Association; 2003.

Lacy DF, Armstrong LL, Goldman MP, Lance LL. *Drug Information Handbook 10th edition*. Hudson, OH: Lexi-Comp Inc; 2002.

Lyons P, Miller WC. Effective healthcare for large people. *Healthy Weight J*. 2000;14:71.

Maggard MA, Shugarman LR, Suttorp M, Maglione M, Sugarman HJ, Livingston EH et al. Meta-Analysis: Surgical Treatment of Obesity. *Ann Intern Med*. 2005;142:547-559.

Mahan LK, Escott-Stumps S. *Krause's Food Nutrition & Diet Therapy*, 11th edition. Elsevier; 2004.

Marlatt, GA. Relapse: A Cognitive Behavioral Model. In Brownell KD, Fairburn, CG.(eds) *Eating disorders and Obesity: A Comprehensive Handbook*. New York, NY: Guilford; 1995: 541-546.

Matson AS, Dershem T, Jaroch L. *Nutritional Implications of Bariatric Surgery: Perspectives of Practitioners*. American Dietetic Association; 2004.

McDevitt RM, et al. De novo lipogenesis during controlled overfeeding with sucrose or glucose in lean and obese women. *Am J Clin Nutr*. 2001;74:737.

McFarlane T, Polivy J, McCabe RE. Help, not harm: Psychological foundation for a nondieting approach toward health. *J Social Issues*. 1999;55:261-276.

McTigue KM, Harris R, Hemphill B, Lux L, Sutton S, Bunton AJ, Lohr KN. Screening and interventions for obesity in adults: summary of the evidence for the US Preventive Services Task Force. *Ann Intern Med.* 2003;139 (11):933-49.

Meridia® [package insert]. North Chicago, IL: Abbot Laboratories; October 2003.

Mifflin MD, St. Jeor ST, Hill LA, Scott BJ, Daugherty SA, Koh YO. A new predictive equation for resting energy expenditure in healthy individuals. *Am J Clin Nutr*. 1990;51:241-247.

Mokdad A, Marks JM, Stroup D, Gerberding J. Correction: Actual Causes of Death in the United States, 2000. *JAMA.* 2005;293(3):293.

MOVE! Quick Start Manual; November 2005.

MOVE! Clinical Reference Manual; August 2004.

Multiple Authors. Special Report-Betsy Lehman Center for Patient Safety and Medical Error Reduction: Report of Expert Panel on Weight Loss. *Obesity Research*. 2005;13(2):205-305.

NAASO slide sets available at www.NAASO.org

Naeye R, Roode P. The sizes and numbers of cells in visceral organs in human obesity. *American Journal of Clinical Pathology.* 1970;54:251.

National Institute for Clinical Excellence. *Guidance on the use of surgery to aid weight reduction for people with morbid obesity*. Technology Appraisal Guidance No. 46. London, England; July 2002.

National Institutes of Health. *Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report*; 1998. NIH Publication No. 98-4083 .

National Institutes of Health: National Heart, Lung and Blood Institute: North American Association for the Study of Obesity. *The Practical Guide: Identification, Evaluation and Treatment of Overweight and Obesity in Adults*. National Institutes of Health; 2000. NIH Publication No. 00-4084.

NHS Centre for Reviews and Dissemination. CRD Report 10 *Systematic review of interventions in the treatment and prevention of obesity. 1997.* Available at http://www.york.ac.uk/inst/crd/obesity.htm. Access verified 10/31/2005.

Nieman DC, Trone GA, Austin MD. A new hand-held device for measuring resting energy expenditure and oxygen consumption. *J Am Diet Assoc.* 2003;103:556S-562S.

Nonas CA. A model for chronic care of obesity through dietary treatment. *J Am Diet Assoc*. 1998;98(Suppl 2):S16-S22.

Obesity: Etiology, Treatment, Prevention, and Applications in Practice. *J Am Diet Assoc.* 2005;105(Suppl 1).

Perri MG, Corsica JA. Improving the Maintenance of Weight Lost in Behavioral Treatment of Obesity. In Wadden TA, Stunkard AJ. (Eds.) *Handbook of Obesity Treatment.* New York, NY: Guilford; 2002:357-379.

Perri, MG. Methods for Maintaining Weight Loss. In Brownell KD, Fairburn, CG.(Eds) *Eating disorders and Obesity: A Comprehensive Handbook*. New York, NY: Guilford; 1995:547-551.

Physicians' Desk Reference. 56th ed. Montvale, NJ: Medical Economics Company, Inc; 2002.

Pierson RN Jr, et al. Body composition and metabolic rate. In: Dalton S, editor: *Overweight and weight management*. Gaithersburg, MD: Aspen Publishers; 1997.

Pi-Sunyer FX. Short-term medical benefits and adverse effects of weight loss. *Ann Intern Med*. 1993;119:722-726.

Post-Operative Bariatric Surgery Guidance compiled from various VA and non-VA clinical providers of bariatric surgery.

Project PACE Research and Development Team. *PACE Physical Activity Manual*. San Diego State University and San Diego Center for Health Interventions; 2001.

Rathmann W, Funkhouser E, Dyer AR, Roseman JM. Relations of hyperuricemia with the various components of the insulin resistance syndrome in young black and white adults: the CARDIA study. Coronoary Artery Risk Development in Young Adults. *Ann Epidemio*. 1998;4:250-261.

Rippe JM, McInnis KJ, Melanson KJ. Physician involvement in the management of obesity as a primary medical condition. *Obesity Research.* 2001;9:S302-S311.

Rollnick S, Mason P, Butler C. *Health Behavior Change: A Guide for Practitioners*. Edinburgh. UK: Churchill Livingstone, Harcourt Brace and Company Limited; 1999.

Saltzman E, Anderson W, Apovian CM, Boulton H, Camberlain A, Cullum-Dugan D et al. Criteria of Patient Selection and Multidisciplinary Evaluation and Treatment of the Weight Loss Surgery Patient. *Obes Res.* 2005;13:234-243.

Saunders, R. Post-surgery group therapy for gastric bypass patients. *Obes Surg.* 2005;15:1128-1131.

Schneider BE, Mun EC. Surgical Management of Morbid Obesity. *Diabetes Care*. 2005;28(2):475-480.

Seguin RA, Epping JN, Buchner DM, Bloch R, Nelson ME. *Growing Stronger: Strength Training for Older Adults*. Published by CDC and Tufts University; 2002.

Shils ME, Goodhart RS. *Modern Nutrition in Health and Disease.* 6th ed. Philadelphia, Lea & Febigfer; 1980.

Snow V, Barry P, Fitterman N, Qaseem A, Weiss K. Pharmacologic and Surgical Management of Obesity in Primary Care: A Clinical Practice Guideline from the American College of Physicians. *Ann Intern Med*. 2005;142:525-531.

Sogg S., Mori D. The Boston Interview for Gastric Bypass: Determining the Psychological Suitability of Surgical Candidates. *Obesity Surgery* 2004. 14:370-380.

St. Jeor ST, Howared BV, Prewitt TE, Bovee V, Bazzarre T, Eckel RH. Dietary protein and weight reduction: a statement for healthcare professionals from the Nutrition Committee of the Council on Nutrition, Physical Activity, and Metabolism of the American Heart Association. *Circulation*. 2001;104:1869-1874.

TIP Series #35. Substance Abuse and Mental Health Services Administration. *Enhancing Motivation for Change in Substance Abuse Treatment*; 1999. DHHS Publication No. (SMA)99-3354.

Tsai AG, Wadden TA. Systematic Review: An evaluation of major commercial weight loss programs in the United States. *Ann Intern Med*. 2005;142:56-66.

U.S. Department of Health and Human Services. *Physical Activity and Health: A Report of the Surgeon General.* Atlanta, GA: U. S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion; 1996.

US Dept of Health and Human Services and US Department of Agriculture. *Dietary Guidelines for Americans;* 2005. HHS Publication No. HHS-ODPHP-2005-01-DGA-A.

US Dept of Health and Human Services. *Exercise: A Guide from the National Institute on Aging;* April 2004. NIH Publication No. 01-4258.

US Preventive Services Task Force. *Screening for Obesity in Adults. Recommendations and Rationale.* Agency for Healthcare Research and Quality, Public Health Service, US Department of Health and Human Services; December 2003. AHRQ Pub No. 04-0528A.

Van Itallie TB, Yang MU. Diet and weight loss. *N Engl J Med*. 1977;297:1158-1161.

VHA Handbook 1109.2. *Clinical Nutrition Management*; Dec. 27, 2001.

VHA Information Letter: *Efficacy of High Protein Low Carbohydrate Diet in Promoting Weight Loss*: IL 10-2005-005.

VHA Information Letter: *The Managing Overweight and/or Obesity for Veterans Everywhere (MOVE!) Program*: IL 10-2004-014.

VHA National Formulary. VHA Pharmacy Benefits Management Strategic Health Group. http://vaww.pbm.med.va.gov/pbm/natform.htm

VHA Nutrition and Foodservice Patient Education Materials - Bariatric Surgery http://vaww.va.gov/nfs/clinical/PtEd.htm#surgery

VHA Pharmacy Benefits Management Strategic Healthcare Group and Medical Advisory Panel. *Antipsychotics and Metabolic Effects 2002-2003 Update*; Updated Feb 2004. http://vaww.pbm.med.va.gov/guidelines/Atypical%20AntipsychoticsME.pdf

VHA Pharmacy Benefits Management Strategic Healthcare Group and Medical Advisory Panel. *Recommendations for Atypical Anti-psychotic Use in Schizophrenia and Schizoaffective Disorders;* Updated May 2004. http://vaww.pbm.med.va.gov/guidelines/Atypical%20algorithm%202004.pdf.

VHA Pharmacy Benefits Management Strategic Healthcare Group and the Medical Advisory Panel. National PBM Drug Monograph Orlistat (Xenical®); January 2005.

VHA Pharmacy Benefits Management Strategic Healthcare Group and the Medical Advisory Panel. National PBM Drug Monograph Sibutramine (Meridia®); January 2005.

VISN 6 Diet Manual found at: http://vaww.netsix.med.va.gov/netsix/clinical/nfs.cfm?facility=durham.

Wadden TA, Didie E. What's in a name? Patients' preferred terms for describing obesity. *Obes Res*. 2003;11(9):1140-6.

Wadden TA, Vogt RA, Andersen RE, Bartlett SJ, Foster GD, Kuehnel RH, Wilk J, Weinstock R, Buckenmeyer P, Berkowitz RI., Steen SN. Exercise in the treatment of obesity: effects of four interventions on body composition, resting energy expenditure, appetite and mood. *J Consult Clin Psychol*. 1997;65:269-277.

Weight-control Information Network (WIN). *Active at any Size*. (NIH Pub No 04-4352) National Institute of Health. U.S. Department of Health and Human Services. Reprint April 2004.

Xenical® [package insert]. Nutley, NJ: Roche Laboratories, Inc.; December 2003.

Yang MU, Van Itallie TB. Effects of energy restriction on body composition and nitrogen balance in obese individuals. In: Wadden TA, Van Itallie TB, eds. *Treatment of the Seriously Obese Patient*. New York, NY: Guilford Press; 1992:83-106.