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Facilitating Physical Activity

Introduction

The [VA National Center for Health Promotion and Disease Prevention \(NCP\)](#), [Veterans Health Administration \(VHA\) Office of Patient Care Services](#), with input from the field, developed a [Weight Management Program for Veterans \(MOVE!®\)](#). This program is based on the [NIH Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report](#)¹ and the United States Preventive Services Task Force (USPSTF) *Screening and Interventions for Obesity in Adults: Summary of the Evidence for the US Preventive Services Task Force*² and *Screening for Obesity in Adults*.³

The following resources have provided guidance to VHA clinicians for implementation/maintenance of weight management programs:

- [Handbook 1101: Managing Overweight and/or Obesity for Veterans Everywhere \(MOVE!\) Program](#)⁴
- [Joint Veterans Affairs \(VA\)/Department of Defense \(DoD\) Clinical Practice Guideline for Screening and Management of Overweight and Obesity \(CPG\) \(2006\)](#)⁵

MOVE continues to be updated based on revisions of the guidelines^{6,7} cited above. The current USPSTF screening recommendation is available at: [Screening for and Management of Obesity in Adults: U.S. Preventive Service Taskforce Recommendation Statement](#).

The MOVE! Reference Manual addresses the full spectrum of weight management. The manual consists of topic-specific chapters, and each topic should be considered in relation to others.

General Information

The information found in this chapter is based on the [2008 Physical Activity Guidelines for Americans](#)⁸ published by the US Department of Health and Human Services. This chapter introduces the concept of physical activity and explains the different types and the components that comprise physical activity. Being physically inactive puts individuals at risk. Physical activity, proper nutrition, and behavioral modifications go hand-in-hand when making healthy lifestyle changes and attempting to manage weight. Suggested physical activity plans as well as screening for safety and risk issues are also included in this chapter.

Definitions of Physical Activity Terms and Concepts

Physical activity is anything that gets the body moving. In general, it can be categorized as lifestyle, work, or programmed physical activity. Lifestyle physical activity is performed during the routine tasks of daily living while at home, work, or leisure. Programmed physical activity is the type of activity we generally think of as “exercise” and is usually performed during specific blocks of time set aside for the explicit purpose of physical activity.

Encourage Veterans to choose a variety of physical activities to help meet their goals, prevent boredom, and keep both mind and body challenged and connected. The choice of activities is highly individual and may vary greatly from one person to another. Some Veterans may be able to achieve weight loss goals entirely through lifestyle activities while others may need to incorporate some programmed physical activity as well. Remember, one size doesn't fit everyone. MOVE!® focuses on lifestyle change that can be maintained. To maintain higher levels of physical activity and continue with a lifelong activity plan, assist Veterans in finding activities that they enjoy.

Components of Physical Activity

Aerobic activity, also called endurance activity or “cardio”, is when the body's large muscles move in a rhythmic manner for a sustained period of time. The heart beats faster than usual and breathing increases. Aerobic activity can be of light, moderate, or vigorous intensity. Examples include aerobics classes, swimming, running, walking, kickboxing, dancing, and cycling. Walking is often the easiest and most convenient form of aerobic exercise used in weight loss programs.

Strengthening activity causes the body's muscles to work or push against an applied force or weight. This includes resistance training and lifting weights. Resistance can be generated using elastic bands, handheld weights, or body weight. Other modes include yoga, Pilates, and utilizing water buoys in water aerobics. The effects of muscle-strengthening activity are limited to the muscles doing the work. There is some evidence that strength training has some aerobic benefits as well.

Flexibility (Stretching) is a form of physical activity in which a specific skeletal muscle (or muscle group) is deliberately stretched along the length of the muscle in order to improve the muscle's elasticity. The result is a feeling of increased muscle control, flexibility, and range of motion. Stretching is also used therapeutically to alleviate cramps. For those who are not active on a regular basis, stretching at least three times per week to maintain flexibility is a good starting point. Stretching after aerobic exercise when the muscle is warm is more effective than before exercise.

Intensity refers to how hard the body is working. The following definitions demonstrate varying categories of intensity as it relates to physical activity:

- **Light-intensity** activity requires minimal effort and has little to no effect on heart rate, breathing, and perspiration. Examples include standing, slow walking, folding laundry, shopping, and running errands. Although there are few health benefits associated with light-intensity activity, some exercise is better than none. However, very sedentary individuals may need to start with light-intensity activity to build endurance for higher-intensity activities. Light-intensity activities can be thought of as functional activities that we participate in on a daily basis. Relative to weight management, maintaining light-intensity activity will burn more calories than sedentary behavior. For example, standing at one's desk is better than sitting.
- **Moderate-intensity** activity causes some increases in heart rate, breathing, and perspiration. Examples include brisk walking, cycling on level terrain, dancing, house/yard work, or golfing while walking the course and carrying your clubs. When doing moderate-intensity exercise one should be able to hold a conversation, but not be able to sing.
- **Vigorous-intensity** activity results in a substantial cardiorespiratory challenge (e.g., hard breathing, rapid heart rate, significant perspiration). Examples include running, continuously swimming laps, and racquet sports. At this level of exercise, it is difficult to have a conversation. Note that any level of activity may be considered "hard" or "very hard" by some sedentary or deconditioned individuals. Intensity is relative and should be judged by the participant.

The term intensity may also be applied to strength training (listed above). The specifics on strength and flexibility and the intensity at which each should be performed will be discussed later in the chapter. For weight loss, begin by focusing on aerobic activity. Add other fitness components as the Veteran progresses.

Physical Activity Guidelines

In October of 2008, the US Department of Health and Human Services released the *2008 Physical Activity Guidelines for Americans*. These recommendations are based on a review of several thousand articles and research related to physical activity and health. The guidelines state that **all adults should avoid inactivity**. For substantial health benefits, adults should

- Engage in 2 ½ hours (150 minutes) of moderate-intensity aerobic physical activity, **OR**
- 1 ¼ hours (75 minutes) of vigorous-intensity aerobic physical activity per week, **OR**
- An equivalent combination of moderate- and vigorous-intensity aerobic physical activity.
- If continuous activity is not an option this should be performed in episodes of at least 10 minutes, spread out during the week.
- **Additional health benefits** and likelihood of **weight loss** can result from increasing to 5 hours (300 minutes) of moderate-intensity aerobic physical activity, or 2 ½ hours (150 minutes) a week of vigorous-intensity physical activity, or an equivalent combination of both.
- Adults should also do muscle-strengthening activities that involve all major muscle groups on 2 or more days each week.

Fewer than half of U.S. adults get the amount of physical activity recommended in the *2008 Physical Activity Guidelines for Americans*.⁸ Inadequate amounts of physical activity and increasing physical inactivity are two of the main contributors to the epidemic of overweight and obesity. The majority of U.S. adults are not active enough. On average, men and women over the age of 60 are only getting 12 and 16 minutes, respectively, of moderate to vigorous-intensity physical activity per day.⁹ In fact, men and women over the age of 60 are getting 8.4 hours/day of sedentary time, on average.¹⁰ Furthermore, one quarter of Americans report that they engage in no leisure-time physical activity (LTPA).¹¹

Health benefits of regular physical activity include 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.¹²

MOVE![®] recognizes the need for all Veterans to meet physical activity guidelines to improve or maintain health. Many Veterans have multiple, chronic health conditions that make physical activity more challenging. MOVE![®] provides tailored guidance to assist Veterans in being as physically active as possible.

Energy Balance

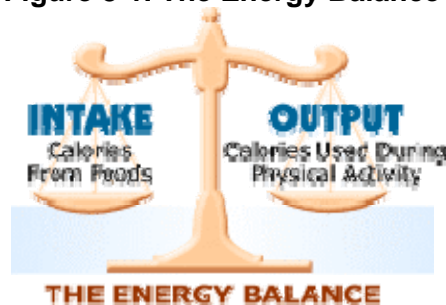
Overweight and obesity occur when fewer calories are expended than consumed (Figure 8.1). Typically, calories are expended through actions such as physical activity. Calories are taken in through food and beverages. Thus, both physical activity and caloric intake must both be considered when trying to control body weight.

Physical activity is a critical factor in determining whether a person will maintain a healthy body weight, will lose excess body weight, or will maintain lost weight. Strong scientific evidence shows that, over time, physical activity helps to achieve and maintain weight loss. Yet, people vary a great deal in how much physical activity they need to achieve and maintain a healthy weight. The optimal amount of physical activity needed to maintain weight is unclear due to other physiological changes that accompany weight loss.

Many individuals need more than the equivalent of 150 minutes of moderate-intensity activity weekly to maintain their weight. The National Weight Loss Registry illustrates that individuals who have lost 30 pounds and maintained this for at least 5 years exercise 60-90 minutes per day, expending 2,500 and 3,300 kcals per week for women and men, respectively.¹³ Muscle-strengthening activities may help promote weight maintenance, although not to the same degree as aerobic activity.

Individuals wishing to lose a substantial amount of weight (5-10 percent of body weight) and people who are trying to keep a significant amount of weight off following weight loss need a high amount of physical activity, **unless** they also reduce their caloric intake. Many people need more than 300 minutes of moderate-intensity activity a week to meet weight-control goals.⁸ For long-term success, gradual weight loss that incorporates sustainable lifestyle changes should be the goal.

Figure 8-1. The Energy Balance



Weight loss of 0.5-2 pounds per week is strongly supported by scientific evidence. Over a period of weeks to months, this rate of weight loss can result in significant weight reduction and is more likely to be sustained. The net calorie deficit associated with a 0.5-2 pound per week loss is realistic and achievable for most people. Weight loss rates above 2 pounds per week are usually associated with the loss of lean muscle mass and

should be avoided. In addition, rapid weight loss is less likely to be maintained than gradual weight loss. MOVE!® is a lifestyle program with a focus on sustainable behavior change(s). Losing weight at the recommended rate should preserve lean muscle mass, which can then gradually be increased through strength training. For Veterans with diabetes, improvements may also be noted in insulin sensitivity as well as greater calorie expenditure since lean muscle mass is metabolically active.

Types of Physical Activity

Lifestyle vs. Work vs. Programmed Physical Activity

Encourage the Veteran to choose a variety of physical activities to help meet goals, prevent boredom, and keep both mind and body challenged and connected. The best activities are those that the Veteran enjoys. These activities are more likely to be continued.

Some patients will prefer to engage in programmed activity while others may choose lifestyle activities only. A program incorporating aerobic activity, muscle-strengthening, flexibility, and lifestyle activity will maximize health benefits, minimize injury, and increase endurance. Remember that the overall objective of any physical activity program is to help the patient perform regular physical activity that is enjoyable and sustainable.

A patient-centered program encourages the patient, rather than the health care team, to generate ideas and solutions. Given the relative complexities of some strength and flexibility activities, however, this may be an area where the patient requires some guidance and instruction. Offer instruction in a supportive, empathetic, and motivational manner. Let the patient come up with ideas of what they would like to try.

Physical activity can be categorized into three broad categories:

- Lifestyle physical activity
- Work physical activity
- Programmed physical activity

Figure 8-2 demonstrates the building blocks of physical activity. Notice the base is made up of both lifestyle and work physical activity and should be the main focus when beginning weight management. If the Veteran does not have time to build in programmed exercise, the best recommendation would be to encourage them to increase their lifestyle and work physical activities. Programmed physical activity should be recommended in addition to lifestyle and work physical activity to achieve physical activity requirements.

Lifestyle Physical Activity

Evidence suggests that health benefits can be achieved by accumulating 10-minute sessions of moderate-intensity physical activity. For example, a Veteran could accumulate a total of 150 minutes of moderate-intensity physical activity each week by engaging in fifteen 10-minute walking sessions. Activities performed as part of the daily routine at home or at work, including taking the stairs instead of the elevator, can contribute to total physical activity. Initially, sedentary, overweight, or obese individuals may find it easier to increase lifestyle activities rather than engage in programmed activity. Veterans often do not recognize these lifestyle activities as opportunities to be

active. Talk with the Veteran about the many opportunities available to incorporate lifestyle activity into daily life. Figure 8-2 provides examples of lifestyle physical activity. This list is also available as patient handout *Activities to Fit Your Lifestyle*.

Work Physical Activity

There are ways to be physically active throughout the day, even while you work. In fact, sitting increases the risk for premature death. A study in 2011 noted that 37 percent of women and 18 percent of men were more likely to die within a 13-year period if they sat for more than 3 hours compared to same sex populations sitting less than 3 hours.¹⁴

Consider being as active as possible throughout the work day:

- Stand while working
- Take a 15-minute walk twice a day
- Walk a few minutes every hour
- Pace while you are on a call
- Walk the “long” way to get to the printer

Every little bit of physical activity counts. The more aware Veterans are of and take advantage of opportunities to increase leisure time activity, the greater their chances for living longer, healthier lives.

Programmed Physical Activity

Programmed physical activity can be grouped into three main types depending on the purpose of the activity. All are important elements of any physical activity program. The three types include:

- Aerobic activity (also called endurance or cardio activity)
- Strength training
- Flexibility (stretching)

Figure 8-2. Examples of Programmed, Work and Lifestyle Physical Activity



Aerobic Activity

In this kind of physical activity, the body's large muscles move in a rhythmic manner for a sustained period of time. Brisk walking, running, bicycling, jumping rope, and swimming are all examples. Aerobic activity causes a person's heart and breathing to be faster than usual. Aerobic physical activity has four components and can be designed using FITT principles. FITT, which is referenced later in this chapter, has four components:

- **Frequency:** number of days of the week
- **Intensity:** light, moderate, or vigorous
- **Time:** length of each session
- **Type:** equipment used or setting for activity

Although these components make up a physical activity profile, research has shown that the total amount of physical activity (minutes of moderate-intensity physical activity, for example) is more important for achieving health benefits than is any one component (frequency, intensity, or duration).

Muscle-Strengthening Activity

Every activity, including lifestyle activities, requires a certain amount of strength as well as endurance. Strength training alone will not burn enough calories for weight loss, but increased lean muscle mass increases metabolism, which increases caloric expenditure and ultimately contributes to weight loss. In addition, stronger muscles, bones, and joints will:

- Enable Veterans to perform activities with less physiological stress
- Reduce the chances of injury during physical activity
- Improve insulin sensitivity
- Help to maintain functional independence

Muscle-strengthening activity, which includes resistance training and lifting weights, causes the body's muscles to work against an applied force or weight. Often this will involve relatively heavy objects, such as hand weights, which are lifted multiple times to train various muscle groups. Muscle-strengthening activity can also be done in a low-tech manner using resistance bands or body weight for resistance (climbing a tree or doing push-ups, for example). An individual may also choose to use more sophisticated equipment available at a gym or health club. Muscle-strengthening activity also has four components:

- **Frequency:** number of days per week (two or three nonconsecutive days per week are recommended)
- **Intensity:** how much weight or force is used relative to how much a person is able to lift and how many times (repetitions) the individual can lift the weight
- **Time:** length of each session (there is no time limit for strength training)
- **Type:** what equipment will be used

It is important to work all the major muscle groups of the body: the legs, hips, back, abdomen, chest, shoulders, and arms.

Discuss the following guidelines with the Veteran:

- Perform each strength exercise 8 to 12 times
- Perform strength exercises at least 2 times per week involving all the major muscle groups listed above
- Complete all movements in a slow, controlled fashion using the full available range of motion
- Don't hold your breath
- Stop if you feel pain
- Stretch each muscle after the workout

A sample strength program for Veterans is available on the MOVE!® Web site.

Flexibility (stretching) Activities

Flexibility, commonly called stretching, refers to the ability to move joints through their full range of motion. Activities and exercises that lengthen muscles can help to increase flexibility.

Stability and **balance** are affected by the body's core muscle strength. Stability and balance can be improved with core exercises that focus on the area around the center of the body. A strong core can help combat poor posture, decrease low back pain, and prevent falls.

Flexibility is important for improving balance and reducing the chance of injury during either programmed or lifestyle activities. Concentrate on achieving the maximum available range of motion for all joints. Static stretching is a slow, gradual and controlled muscle stretch that takes the muscle or muscles just to the point of gentle tension and is held steadily for 15-30 seconds (no bouncing!). Static stretching can be highly effective, has a low risk of injury, and requires little time or assistance. Remember, stretching is most beneficial after a workout when the muscle is warm and more flexible. Any stretching before physical activity should be dynamic in nature such as arm circles, shoulder rolls, or walking lunges.

Yoga and Tai Chi movements may also be beneficial for flexibility, balance, and endurance. Discuss the following guidelines with the Veteran regarding stretching activities:

- Complete all movements in a slow, controlled manner
- Gradually progress to greater ranges of motion as possible
- Hold the stretch at the point of gentle tension for 15-60 seconds
- Continue to breathe regularly at all times, DO NOT HOLD BREATH
- Repeat each stretch ≥ four times
- Incorporate flexibility activities throughout the day, along with stretching before and after programmed activities

Components of a Physical Activity Program

FITT: Frequency, Intensity, Time, and Type

FITT is an acronym to describe the four components of a physical activity program. FITT stands for *Frequency, Intensity, Time and Type*. Each component is discussed in more detail in the section below.

Frequency: How often is physical activity performed? Typically this is described as the number of days per week, or for beginners, it may be described as the number of times or sessions per day. The *Physical Activity Guidelines* recommend a weekly amount of minutes and suggest that spreading this out during the week is best.

Intensity: Veterans often ask, “How hard should I be exercising?” This question should be answered on an individual basis since what is easy for one person may be hard for another. Typically, activities can be classified as light, moderate, or vigorous. These intensities are defined at the beginning of this chapter under *Definitions of Physical Activity Terms and Concepts*. It is NOT recommended to tell a Veteran exactly how fast to walk or how many pounds to lift. Rather, encourage the Veteran to listen to their body signals (e.g., discomfort/pain, shortness of breath, dizziness, cramps) and set realistic and achievable goals. In general, reported levels of exercise intensity correspond with objective measures (i.e., heart rate).¹⁵ Thus, Veteran reports of intensity should be considered accurate. Remember, as Veterans begin to become physically active, their bodies will change and they will have more endurance over time. Veterans may be able to walk 10 minutes the first week, and then slowly add 5 minutes per week until they eventually are able to walk 30-45 minutes without difficulty. Starting slow and working up is key in allowing Veterans’ fitness levels to adapt as they become more physically active.

Measuring Physical Activity Intensity:

Traditionally, exercise training intensities (metabolic equivalents or METs) have been based on a straight percentage of VO_2max (maximal oxygen uptake). Alternative methods for measuring activity intensity include the talk test, ratings of perceived exertion, and use of target heart rate.

Talk Test

The talk test is a fitness term used to describe or help a participant gauge their intensity while exercising. For example, a person performing light-intensity activity should be able to sing. One who is active at a light-to-moderate intensity should be able to carry on a conversation. If a person is not able to carry on a conversation, the activity can be considered vigorous. Participants engaging in light or moderate activity should not be breathless or unable to carry on a conversation for long periods of time. This is likely to occur during interval training (periods of higher intensity activity, followed by a recovery phase that is repeated during the workout duration).

Rating of Perceived Exertions

The Rating of Perceived Exertion (RPE) is a person's assessment of "how hard" he/she is working. RPE is likely to agree with objective measures such as heart rate. Veterans 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 8-1 is one such tool.

Table 8-1. 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 performed at approximately an RPE 13, or "somewhat hard." Strength activities should be performed between levels 15-17, or "hard" to "very hard." Effort is determined by comparing the current activity effort to maximum possible effort. As a Veteran's body adapts and becomes more fit, activities can gradually be made more challenging. Activities that used to be "hard" or "very hard" may become easier over time and earn a lower RPE by comparison. For example, slow walking on level ground may initially be an RPE 13 effort for an individual. As fitness improves, however, that same RPE 13 effort may become a more advanced activity, such as brisk walking up a slight hill.

Target heart rate monitoring is an objective way to gauge activity intensity. Some medications may affect baseline heart rate and the heart rate response to exercise; thus, heart rate monitoring may not be as useful for patients who take such medicines.

Examples of medications that slow resting heart rate and limit heart rate include:

- Beta-blockers (atenolol, carvedilol, metoprolol, etc.)
- Some calcium channel blockers (verapamil, diltiazem)
- Digoxin

- Amiodarone

Examples of medications that increase resting heart rate and exaggerate heart rate response to exercise include:

- Decongestants (pseudoephedrine, over-the-counter cold products)
- Tricyclic anti-depressants (amitriptyline, desipramine, doxepin, nortriptyline, etc.)
- Atypical psychotropics (aripiprazole, olanzapine, ziprasidone, risperidone, clozapine)
- Theophylline
- Beta-agonist inhalers (albuterol, salmeterol)

For moderate-intensity physical activity, target heart rate should be 50-70 percent of maximum heart rate. This maximum rate is based on an individual's age. An estimate of maximum age-related heart rate can be obtained by subtracting age from 220.

For example, the estimated maximum age-related heart rate for a 50-year-old would be calculated as $220 - 50 = 170$ beats per minute (bpm).

The 50 percent to 70 percent target heart rate range would be:

- 50 percent level: $170 \times 0.50 = 85$ bpm
- 70 percent level: $170 \times 0.70 = 119$ bpm

Thus, the target heart rate for a 50-year-old for moderate-intensity physical activity is between 85 and 119 bpm. During vigorous-intensity physical activity, target heart rate should be 70- 85 percent of 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.

If the patient is on a medication that limits increased heart rate in response to physical activity, do not recommend a target heart rate range of 70-85 percent as this is unlikely to be achieved. Consider recommending 70 percent as the maximum physical activity threshold.

Measuring Heart Rate

To determine if exercise is within the target heart rate zone, pulse must be measured. To do this, palpate the radial pulse at the wrist in line with the thumb. Place the fleshy tips of the index and middle fingers over the artery and press lightly. Do not use the thumb. See Figure 8-3 for an illustration of heart rate measurement at the wrist. Start counting at zero and count beats for 10 seconds. Then, multiply this number by 6 to get the heart rate per minute.

Figure 8-3. Demonstration of the Proper Technique for Taking a Radial Pulse at the Wrist



Table 8-2
Target Heart Rate Ranges for Moderate- and Vigorous-Intensity Activity
Based on 10 Second and 60 Second Pulse Counts



Age (years)	50% (*bpm)	70% (bpm)	85% (bpm)	Maximum Heart Rate (bpm)
20	100	140	170	200
25	98	137	166	195
30	95	133	162	190
35	93	130	157	185
40	90	126	153	180
45	88	123	149	175
50	85	119	145	170
55	83	116	140	165
60	80	112	136	160
65	78	109	132	155
70	75	105	128	150
75	73	102	123	145
80	70	98	119	140
85	68	95	115	135

*bpm = beats per minute

Time: For how long is physical activity performed? Typically duration is described in minutes per session. *The Physical Activity Guidelines* state that for health benefits, activity may be accumulated in as little as 10-minute episodes, preferably spread out during the week. Keep in mind that the time goal for health benefits is 150 minutes per week, with greater benefits in health and weight loss coming with 300 minutes per week. Again, as a Veteran’s endurance improves, they will likely be able to extend the amount of time they are physically active.

Type: Physical activity can be broadly classified as aerobic (e.g., bicycling), strength (e.g., weight-lifting), or flexibility (e.g., yoga).

Sample Program Using FITT

Here is an example of a physical activity program designed using FITT principles.

Table 8-3
Sample Physical Activity Program Using FITT

	Aerobic	Strength	Stretch
Frequency	5 days/week +	2 days/week	7 days/week
Intensity	Moderate, or 13+ RPE	16+ RPE, or to the point of fatigue	To the point of slight pull or tension with no pain
Time	240 minutes total: 3 days of 60-minute walking 2 days of 30 minutes walking (Three 10-minute increments)	No time limit	Stretch for 10 minutes all major muscle groups used; hold each stretch for 30 seconds
Type	Walking on the treadmill and outdoors or around office building	Dumbbells and body weight exercises (crunches, push-ups)	Chair stretches

Physical Activity Goal Setting and Problem-Solving

Setting Physical Activity Goals

As with any behavior change, short-term, achievable goals are key to success. Advise the Veteran to set goals for a short time period, no more than 1-3 weeks at a time. Keep in mind that these goals should be set by the Veteran. You will guide them, but they are more likely to have success if they are setting their own goals. Early success with short-term goals is a powerful motivator to continue. As discussed in *Program Delivery and Facilitating Healthy Behavior Chapters*, goals set should be **SMART**:

S – specific

M – measurable

A – action-oriented

R – realistic

T – time-based

An example of a SMART physical activity goal might be: “On at least 5 days this week, I will walk for at least 30 minutes.” A goal that is not SMART is: “I will try to get more exercise.” An Exercise Prescription (Appendix 8-1) and/or the Physical Activity Pyramid (Appendix 8-2) may be particularly useful when discussing physical activity goals.

As goals are met and fitness increases, re-evaluate and set new goals. It is recommended that goals be discussed and re-assessed every 2-3 weeks.

In addition to the overall duration and frequency goals, it is sometimes helpful to set other types of goals. Examples include:

- I will take the stairs instead of the elevator at least three times a day.
- I will keep rain gear in my office and use it when it rains so I can meet my goal of walking five times per week.
- I will replace 30 minutes of television with physical activity five or more times a week.
- I will perform two sessions of muscle-strengthening per week.

Follow-Up and Monitoring Progress Toward Goals

As Veterans successfully achieve initial physical activity goals, it is important to reset goals to include increased duration and intensity of physical activity, especially if the Veteran has not achieved the standard of 150 minutes of moderate-intensity physical activity per week. Goals should be re-assessed individually and reset based on what is realistic and acceptable to the Veteran. As previously discussed, regular moderate-intensity physical activity is critical for long-term maintenance of weight loss. Veterans 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.

Reward and Acknowledge Success

Self-management of weight requires a good deal of work and energy. Celebrating successes and strategic use of rewards for the achievement of both short- and long-term goals can be effective in increasing motivation. As food often serves as a reward, consider new ways to be celebratory. Encourage the Veteran to plan small, daily rewards (watch a taped daily television show while stretching) as well as larger rewards for a week's worth of 30 minutes of physical activity per day (buy a new pair of exercise shoes, a water bottle, or an MP3 player). Veterans also respond favorably when clinicians recognize and acknowledge Veterans' achievements. Helping the Veteran to identify positive outcomes of physical activity (e.g., reduced blood pressure, improved lipid profile) is also reinforcing. Refer to chapter, *Facilitating Healthy Behavior*, for more information.

**Table 8-4
Common Barriers to Physical Activity**

Problematic Beliefs	Healthier Beliefs
“I’m too old and it’s too late for me. What good will physical activity do now?”	Physical activity can benefit everyone. It’s never too late to start! We want to help make your golden years truly golden by preventing and minimizing chronic disease.
“I don’t have any time for physical activity.”	Physical activity can be structured into your daily life. For example, consider walking laps around your office building for 30 of the 60 minutes allowed for your lunch break, stand while at a computer, or walk to the mailbox instead of drive.
“I’ve tried it before and exercise is too boring!”	Physical activity should never be boring. Watch TV, listen to music, chat with a friend while you work. Do what is fun for you.
“Last time I tried exercising, I injured myself and I’m scared to try again.”	Start slow and only work your way up when you’re comfortable. If you have concerns about the physical activities you choose, ask for help from the MOVE!® team. We can help you find a way to exercise that doesn’t increase your pain.
“The only thing that helps me lose weight is dieting. Exercise doesn’t work for me.”	We don’t exercise to lose weight. We exercise to benefit our health. However, physical activity does help create caloric deficit. Give it a week. Try ramping up your time by 10 minutes and see if the scale starts to teeter.
“My knees ache all the time from arthritis and this keeps me from being active.”	Believe it or not, physical activity is one of the best things you can do for arthritis. Avoid weight bearing activities and focus on lower impact activities like water aerobics or water walking, bicycling, or using a recumbent elliptical. It is important to wear a supportive and comfortable pair of shoes to support ankle, knee and hip joints during exercise.

Find any reason to be physically active throughout the day. For example, exercise at your work desk, while food is in the microwave or disguise exercise as “play.”

Handling Setbacks

Veterans who have succeeded in maintaining a regular program of physical activity are to be sincerely applauded for their efforts. However, as with any health behavior change, setbacks during weight loss are extremely common. Developing the ability to effectively handle setbacks is critical to maintaining physical activity and preventing relapse. Importance of weight loss may change or confidence may decrease over time, making goals harder to achieve. A Veteran may need an office visit or an extended phone call to reconnect with his/her MOVE!® team and get back on track.

The following can help with problem-solving:

- Help the Veteran define maintainable goals; revise goals individually as needed to ensure they are realistic
- 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 of maintaining increased physical activity
- Reassure Veterans that setbacks are common and can be used as learning experiences.
- Ask the Veteran to rate the importance of weight loss and confidence and compare to prior ratings; explore why these factors may have changed
- Ask the Veteran to identify barriers to reaching physical activity goals and identify and offer potential solutions
- Connect Veterans with VA and community resources.

Help the Veteran create alternative plans for physical activity for these common high-risk scenarios that may 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
- Lacking support, losing motivation
- Not seeing results

Self-Management Support

Self-management support is the process of partnering with the Veteran in an ongoing and trusting relationship to build lifelong self-management skills. This relationship will enable the Veteran to:

- Understand and take responsibility for his or her weight-related conditions
- Actively participate in health behavior planning and changes
- Design an individualized treatment and self-management plan in partnership with the provider, taking into account goals, limitations, and personal preferences.
- Develop and enhance skills and use resources that support adapting to and living with acute and chronic problems, as well as protecting and promoting health and quality of life.

Refer to the Chapter, *Self-Management Support*, for more information.

Tools

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. The prescription may be as simple as a recommendation for unsupervised physical activity or it may be complex and include advice for exercise testing and a formal program of supervised activity. The purpose of an exercise prescription is to:

- Enhance physical fitness
- Promote health
- Ensure safety during physical activity
- Provide a visible reminder for the Veteran
- Recognize exercise as part of medical therapy

An exercise prescription is a great way to get a patient started with physical activity and can be used during the initial goal-setting stage of the program. It should make recommendations for each of the following components:

- F** - Frequency
- I** - Intensity
- T** - Time (duration)
- T** - Type

The recommended frequency, intensity, and duration can be realistically set 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 (Appendix 8-1). Issuing a hand-written prescription reinforces the message and demonstrates the importance of the recommendations. This sample exercise prescription is also available on the MOVE!® Web site.

Note that MOVE!® is a patient-centered program. Although a prescription is traditionally a more directive form of care, a written prescription, particularly one that results from a collaborative process that begins with elicitation of the Veteran's interests and ideas, can be used to encourage the Veteran to begin to increase physical activity. As with medication prescriptions, the written prescription emphasizes its importance. When exercise prescriptions are tailored for individual Veteran preferences and needs, the prescription supports a patient-centered model.

Physical Activity Diary

Keeping track of food intake and physical activity is a powerful self-management tool. Tracking physical activity can help Veterans identify problem patterns and areas for improvement and lead to success with weight loss. Veterans participating in MOVE!® will receive a food and physical activity diary at the beginning of the program.

Pedometers and Clinical Practice Guidelines

For most Veterans, walking can provide an excellent source of physical activity. A pedometer is a device that counts and records the number of steps or forward accelerations. It can be worn inconspicuously on a waistband or belt. If wearing this on the belt is uncomfortable, the currently contracted pedometer can be placed in a pocket or carried in a handbag. Pedometers do not reliably record steps at very slow walking speeds and during activities such as cycling or swimming. If the Veteran is doing low-impact activities, consider using the step conversion chart (Table 8-5).

Pedometers can be used to encourage walking and as a self-management tool to help set goals. Local Prosthetics and Sensory Aids Services stock pedometers through an existing national contract. With a consult request from any VA clinician or MOVE!® team member, Veterans can obtain a pedometer and additional training to learn proper use and care of the pedometer. Pedometers are also sold at many department stores, sporting goods stores, and pharmacies. Clinical Practice Recommendations for pedometers dispensed through Prosthetics and Sensory Aids Service have been established and can be downloaded from the MOVE!®. In summary, pedometer recommendations are as follows:

- Veteran Eligibility Criteria
 - Veteran is participating in weight management care, such as MOVE!®
 - Veteran is interested in increasing physical activity
- Indications/ Contraindications

- Indications: Veterans are interested in monitoring physical activity, can operate the pedometer, and would benefit from using a pedometer.
 - Contraindications: Veterans are restricted from physical activity because of medical reasons, or the Veteran is unable to operate the pedometer/odometer due to physical or cognitive impairment.
- Clinician Responsibility
 - Veteran should receive training in the proper use, care and wear of the pedometer. Qualified individuals as determined by each facility may provide this training.
 - MOVE!® team clinicians may write the consult for the pedometer to be issued to the Veteran. [Note: the clinician does not have to be a physician.]
 - Clinicians should use a patient-centered approach, working with the Veteran to create a physical activity plan.
 - The Veteran is an active participant in the intervention plan including treatment and follow-up.

Guidance for Use of Pedometers

Instruct the Veteran to wear the pedometer for one week to determine baseline steps per day. Each day, the Veteran will record the number of steps taken. At the end of week one, average the weekly steps by adding each day's step counts and dividing by 7. This number will be baseline steps/day.

Once baseline steps/day have been established, encourage the Veteran to set a goal to increase steps. For example, if the Veteran averaged 3,000 steps/day, consider 500 addition steps per day for the second week, and so forth. Guide the Veteran in ways to increase daily steps through being physically active and acquiring steps through everyday activities. Below is an example:

A Veteran measures his/her 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 = $(2,456+3,345+1,789+2,680) / 4 \text{ days} = 2,568 \text{ steps per day}$

For the next week or two, this Veteran can set a goal of 3000 steps per day. This goal represents an increase of 500 steps per day over the average baseline number of steps. Once this goal has been met, the Veteran can then set a new goal of 3500 steps per day for the next 2 weeks, and so on.

An absolute target of 10,000 steps per day is considered “active” and is often promoted as the standard goal for everyone. It is important to understand that this level of activity

may not be achievable or sustainable for some individuals. Ten thousand steps per day adds up to approximately 5 miles/day of walking. 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.

One mile equals 2,000 average steps (range, 1,900 – 2,400). Step equivalents listed in Table 8-5 are approximate and will vary by individual depending on stride length and other factors.

**Table 8-5
Step Equivalents for Various Activities**

Activity	Step Equivalent for 10 Minutes of Activity
Walking <2mph	610
Walking at 2mph	760
Walking at 3mph	1000
Walking at 4 mph	1520
Jogging	2120
Running at 5mph	2420
Running at 6mph	3030
Running at 7mph	3480
Running at 8mph	4090
Bicycling<10mph	1210
Bicycling at moderate pace	2420
Bicycling at fast pace	3640
Stationary bike (moderate effort)	2120
Stationary Bicycling (vigorous effort)	3180
Aerobic Dancing	1970
Fast Ballroom Dancing	1670
Slow Ballroom Dancing	910
Square Dancing	1360
Swimming Leisurely	1820
Swimming Laps (moderate)	2120
Swimming Laps (Vigorous)	3030
Basketball	2420
Bowling	910
Gardening	1210
Golfing	1360
Hiking	1820
Lawn Mowing	1520
Martial Arts	3030
Miniature Golf	910
Raking Leaves/Lawn	1210
Racquetball	2120
Rowing Machine	2120
Rowing Machine (vigorous)	2580
Shopping	700
Soccer	2120
Stretching, yoga	760
Tennis	2120
Water Aerobics	1210
Water Jogging	2420
Weight Lifting (moderate effort)	1210
Weight Lifting (vigorous effort)	1820

Source: <http://walking.about.com/od/measure/a/stepequivalents.ht>

Safety

Some individuals may hesitate to become active or increase their level of physical activity due to concerns about injuries or other unwanted health effects, such as a heart attack. Being sedentary is not medically indicated. In fact, a recent study from Harvard Medical School revealed that persons who are physically inactive had similar risk of death as smokers and obese individuals.¹⁶ Moderate-intensity physical activity, such as brisk walking, in generally healthy people carries a low risk of such adverse events. For adults without heart disease, the risk of a cardiac event is 1 in 400,000-800,000 hours of exercise. Those with existing heart disease have a risk, on average, of 1 in 62,000 hours of exercise.¹⁷ Furthermore, moderate-intensity activity does not require medical clearance in many cases. Non-medical MOVE![®] staff can refer to Appendix 8-3, the *Physical Activity Decision Aid*; Appendix 8-4, *Pre-Exercise Risk Stratification Chart*; Appendix 8-5, *Pre-Exercise Flow Chart*, as well as to the *Veteran's MOVE!23 Staff Report* to help assess whether it is appropriate for an individual Veteran to begin increasing physical activity levels or whether they should be evaluated by a primary care provider for medical clearance.

Adverse Events

People who are regularly physically active have the lowest risk of cardiac events both overall and while being active. Thus, when setting initial physical activity goals, it is important to assess the Veteran's current level of activity and clinical status. Emphasize gradual intensity advancement from a mild to a moderate level of physical activity as fitness improves.

Cardiovascular Risks

The most serious risk of increasing physical activity is a major cardiovascular event with this risk being higher for vigorous-intensity activity. In most cases, in the absence of serious or uncontrolled cardiovascular disease, 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.

Refer to Appendices 8-3, 8-4, and 8-5 to assess the patient before beginning an exercise program. These resources will help guide you in making appropriate risk analysis for all MOVE![®] Veterans with a history of cardiovascular issues and current CVD.

Musculoskeletal Risk

As an individual increases their total amount of physical activity, the risk of musculoskeletal injury can increase. For example, a person who regularly runs 40 miles a week has a higher risk of a running-related injury than a person who runs 10 miles each week. Depending on the type and amount of activity that physically active people do, their overall injury rate may be lower than for inactive people.

Participation in contact or collision sports, such as soccer or football, has a higher risk of injury than participation in non-contact physical activity, such as swimming or walking. In addition, people who are less fit are more likely to be injured than people who are more fit when performing the same contact sports.

Other Risks

Two types of injury 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 of activity include dehydration, asthma attack in susceptible patients, heat exhaustion, frostbite, sunburn, and accidents involving motor vehicles.

Ultimately, the health benefits of physical activity far outweigh the risks of adverse events for almost everyone. Regular exercise is safer than being sedentary.

Minimizing the Risks of Physical Activity

Increasing physical activity can be safe and lead to health benefits, including weight loss. The following are recommendations to reduce the likelihood and severity of complications during physical activity:

Determine Necessity of Medical Clearance

Most Veterans do not require medical clearance prior to beginning a program of physical activity. Non-medical staff are encouraged to review the *MOVE!23 Staff Report* and the *MOVE!® Physical Activity Decision Aid* (Appendix 8-3) to determine when to refer patients for a medical evaluation prior to increasing physical activity.

Two additional tools, the *Pre-Exercise Cardiovascular Risk Stratification Chart* (Appendix 8-4) and the *Pre-Exercise Flow Chart* (Appendix 8-5) have been developed for use by providers to help make decisions about the need for further exercise stress testing, medically supervised physical activity (i.e., cardiac rehabilitation), or other restrictions/precautions for patients. Providers who evaluate Veterans for medical clearance prior to beginning a program of physical activity can also use Appendix 8-5 for guidance. These tools can also be downloaded from the *MOVE!®* Web site.

Provide On-Site Clinical Supervision, if Necessary

Most MOVE!® participants will NOT require clinical supervision for their planned physical activity, but arrangements should be made 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 physical activity-induced complication. Cardiac rehabilitation programs often have several degrees of monitoring ranging from continuous electrocardiographic (ECG) monitoring to simply having trained staff and a medical emergency cart available.

Establish an Emergency Plan

Whether supervised or not, clinicians should ensure that Veterans have a clear understanding of the previously listed signs and symptoms for which they should stop exercising and seek medical attention. Veterans and physical activity class leaders, including volunteers, should be encouraged to carry identification with them at all times, let others know their approximate whereabouts when engaging in outdoor activities, and carry a cellular phone in case assistance is required. Encourage them to wear medical alert bracelets and/or keep emergency contact information with them.

Promote Participant Education

Help Veterans become familiar and comfortable with self-monitoring activity intensity using heart rate and/or perceived exertion scales (e.g., talk test or Borg Scale). Encourage Veterans to understand signs and symptoms of cardiovascular disease and stay within established parameters set with the health care team. Instruct and demonstrate proper form and technique for strength and flexibility training to minimize risk for musculoskeletal injury. Offer other resources (handouts, Web sites, etc.) for Veterans to get more information on specific topics of interest to them.

Encourage Light-to-Moderate Physical Activity Intensity for Beginners

Risks can be minimized by encouraging mild- to moderate-intensity physical activity. Most exercise-related injuries result from vigorous-intensity activity in poorly conditioned individuals with a history of poor safety parameters. While vigorous-intensity activity is important for maximal cardiovascular fitness, many health benefits can be achieved through moderate-intensity activity. Moderate intensity physical activity should be strongly encouraged for the Veteran who has limiting medical conditions and/or who is sedentary or deconditioned.

Emphasize Appropriate Warm-up and Cool Down Before and After Activity

A disproportionate share of cardiac events occur during the warm-up, cool-down, and immediate post-physical activity phases of aerobic activity; thus, it is important that warm-up and cool-down periods be of adequate duration and progressive in nature. A progressive cool-down phase is particularly important after vigorous-intensity activity 1) to enhance venous return to the heart and reduce the risk of post-physical activity hypotension, and 2) to prevent an abrupt rise in plasma catecholamines, which can have an activating effect on the heart. Stretching can be done as part of the cool-down and is important for minimizing musculoskeletal injuries. Recent research indicates that static stretching is no longer recommended as a warm-up procedure.

Take Precautions in the Cold and Heat

Extreme weather conditions, such as excessive heat or cold, can increase cardiac work and lead to reduced coronary blood flow. This can precipitate symptomatic or asymptomatic heart 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 of frostbite by:

- Changing wet clothing often, particularly socks and gloves
- Wearing several layers of light clothing that can be shed or replaced as needed
- Wearing clothing that wicks perspiration away from the skin
- 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, including early morning or late evening
- Relocating to a shady area or moving indoors (i.e., the mall)
- Reducing intensity or adding rest breaks
- Regularly consuming water before, during, and after activity

When counseling Veterans who are increasing their physical activity, it is helpful to explain **normal responses to physical activity**:

- Cardiac output (heart rate and stroke volume) increases with work rate and oxygen uptake – “your heart will beat faster, and you may feel a sensation of pounding”
- Blood pressure (systolic) increases during increasing levels of physical activity
- Breathing increases with increased oxygen consumption – “you’ll breathe faster”
- Perspiration occurs – “you’ll sweat”

Also, discuss the signs and symptoms which indicate **a need to stop activity immediately**:

- Pain, tightness, pressure, or discomfort in the chest, neck, shoulder, arm, back, or jaw
- Severe shortness of breath – “unable to carry a conversation or catch breath”
- Severe nausea or vomiting
- Sudden onset of unilateral extremity weakness or changes in sensation
- Difficulty swallowing, talking or seeing
- Severe headache or dizziness
- Severe, sharp new pain (possible injury)

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.

Physical Activity Counseling for Special Populations

This section will detail physical activity guidance for specific populations and/or some common chronic conditions that Veterans may have. Note that the guidance that follows is general and not intended to replace professional evaluation and care for individual Veterans.

Obese Adults

Goals for Obese Veterans

- Become healthier
- Strive for a healthy weight
- Increase cardiovascular endurance
- Increase strength while decreasing lean body mass loss (sarcopenia)
- Decrease dependence, isolation, and depression
- Decrease overall risk of disease, or prevent complications or progression of existing diseases or conditions

Important Considerations and Special Precautions for Obese Veterans

Obese Veterans (BMI 30 to 39.9) face special challenges when trying to be more physically active. It may be helpful to consider the following special concerns when working with these Veterans, including:

- Limited ability to bend, move, or reach
- Difficulty getting onto or up from the floor
- Finding clothes and equipment for exercising, including appropriate shoes
- Pain, deconditioning, and falls risk issues
- Difficulty with overheating thermoregulation
- Burden of excess weight on joints
- Feeling self-conscious during physical activity, especially in a gym or pool setting

Severely obese Veterans (BMI ≥ 40) may not be able to start off with a weight-bearing activity like walking. Work together with Veterans to find alternative or adapted activities they can comfortably and safely perform.

Suggestions for Physical Activity for Obese Veterans

Here are some ideas to help address some of the concerns of the obese Veteran:

- Start slowly and include warm-up and cool down exercises
- Encourage lifestyle physical activity that minimizes the need for special clothes or equipment

- For those who are self-conscious, focus on a home-based physical activity program or group activities with other obese Veterans
- Include flexibility exercises in the physical activity program
- Consider non-weight-bearing activities, like swimming and water aerobics, which put less stress on joints
- Wear clothes that prevent inner thigh chafing, such as tights or compression shorts
- Check the weight limit on gym equipment (the number of pounds it can support) before recommending at home vs. gym physical activity programs
- Use a recumbent bike, as these tend to have wider seats and are generally more comfortable
- For outdoor biking, use a mountain bike or hybrid bike with wider tires (tip: narrow bike seats can be replaced with wider seats)
- Encourage the Veteran to find a gym where they feel at ease
- Examples of lower impact activities include:
 - Stationary bicycling
 - Chair dancing or chair aerobics
 - Water activities
 - Yoga or Pilates adapted for a chair or bed

Modified activity plans may be necessary. These can 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. Help Veterans choose activities of interest to them so that they are more likely to continue the activity and sustain motivation.

Appendix 8-6 includes additional sample physical activity plans for overweight and obese Veterans, including aerobic, strength, and flexibility programs.

Older Adults

In general, the benefits of weight loss are less clear beyond the age of 70 years. Nonetheless, increasing physical activity at any age is normally beneficial. Thus, MOVE!® goals stress a greater emphasis on increasing or maintaining physical activity.

There are no major contraindications for older adults to partake in a program of physical activity, beyond what has already been discussed. It is important to assess readiness (i.e., importance and confidence) to be physically active. The following pages will also address common conditions associated with age and weight. Should an older Veteran have any other condition, pay careful attention to the important considerations for that specific disease. If your Veteran is overweight or obese, but presumably healthy otherwise, the following are recommendations for a physical activity program.

Goals for Older Veterans

- Increase cardiovascular endurance
- Increase strength while decreasing lean body mass loss (sarcopenia)
- Include balance and agility training to reduce the risk of falls
- Decrease dependence, frailty, isolation, and depression
- Decrease overall risk of disease, or prevent complications or progression of existing diseases or conditions

Important Considerations and Special Precautions for Older Veterans

As we age, certain senses decline. Keep in mind that hearing and vision may be an issue for older adults. Speak clearly and make sure that Veterans hear and understand recommendations before beginning a physical activity program. Cues for assessing intensity level may need to be modified. Heart rate will not be as high during physical activity and sweating may not be obvious. Realistically, the talk test is recommended as an indicator of intensity for older adults. Elderly may also be less sensitive to thirst and tend to drink less. This places them at risk for dehydration.

Suggestions for Physical Activity for Older Veterans

- Participate in aerobic activity for a total of 30 minutes most days of the week for health benefits. For weight management, Veterans should consider increasing this duration to 60 minutes on most days of the week.
- Strength training for older adults is imperative to increase strength and limit bone density and muscle losses. Strength training also enhances balance and coordination as it is necessary for most functional activities. Strength training two to three non-consecutive days per week is the current recommendations for adults 65 and older. On these days, individuals should perform eight to ten exercises utilizing major muscle groups. Exercises should happen twice with eight to twelve repetitions.
- Flexibility is also important in enhancing the muscle's full capacity while focusing on balance. Stretching every day after an exercise session of aerobic or strength training is ideal. Hold each stretch for 15-60 seconds and repeat four times for flexibility gains.

Amputation

Losing a limb can restrict physical activity, but does not eliminate the need for physical activity.

Goals for Veterans with an Amputation

- Develop balance, agility, and coordination
- Improve all aspects of physical fitness, including cardiovascular, flexibility, muscle strength, walking efficiency, and motor skills (Managing weight gives

Important Considerations and Special Precautions for Veterans with an Amputation

For both lower and upper extremity amputation:

- A consultation with a physical therapist or kinesiologist/physiologist is recommended to help the Veteran develop a personalized program and ensure the Veteran has access to any necessary special equipment.
- The part of the body that has been amputated will determine which physical activities are appropriate.
- Exercises aimed at strengthening and flexibility will help with overall fitness and improve experience with prostheses.
- Consider skin breakdown such as blisters. Make sure that Veterans have comfortable seating and practice good hygiene to prevent skin abrasions and hair follicle infections.
- Phantom limb pain, a sensation of feeling the missing limb, is common among recent limb amputations.

For lower extremity amputation:

- 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, climbing stairs, recumbent elliptical, 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. Advise the Veteran to work with a prosthetics clinic to obtain needed adaptations for prosthetic limbs.
- Good prostheses fit well, and practicing proper hygiene will help prevent skin problems.
- The Veteran should determine the correct size and number of stump socks to be worn during physical activity and remember to change stump socks daily or when they become damp or wet (i.e., following physical activity). This is essential to help prevent skin irritations and blisters.
- As the Veteran loses weight, it is probable that the prosthesis may need to be refit so that it doesn't slide up and down on the residual limb causing blisters.

For upper extremity amputation:

- 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.

Suggestions for Physical Activity in Veterans with an Amputation

- Each Veteran should be assessed as an individual as their ability to perform aerobic, strength, and flexibility exercises will vary from one Veteran to the next.
- Despite amputation, Veterans should still strive for aerobic activity equaling 60 minutes per day. This can be done on recumbent equipment (arm ergometer, cycle ergometer, recumbent elliptical) or in the pool.
- Strength training is essential for amputees. Consider a strength training program that does not single-out the amputated limb. Although Veterans may only be able to perform one side of the physical activity, strength training is still beneficial.
- Stretch everyday to loosen limbs as well as decrease likelihood of disability.

Arthritis or Joint and Muscle Pain

Most forms of arthritis benefit from regular physical activity; however, some forms of arthritis or musculoskeletal disorders can be made worse with inappropriate physical activity.

Arthritis has 2 common types:

- **Osteoarthritis (OA)** is much more common than other forms of arthritis, 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 includes the knee, hip, spine, and hand.
- **Rheumatoid arthritis (RA)** is a chronic and systemic inflammatory disease. Vigorous physical activity 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. (In between acute episodes, normal physical activity is recommended.)

Fibromyalgia (FM) is a complex syndrome that includes symptoms of widespread, chronic musculoskeletal pain, often associated with a sleep disorder and symptoms of depression. It does not appear to be inflammatory in nature or cause joint deformities or disease like arthritis. FM symptoms are often exacerbated by physical inactivity.

Goals for Veterans with Arthritis, Joint or Muscle Pain

- Develop and maintain joint flexibility, muscle mass and strength
- Improve range of motion
- Reduce the pain and weakness from arthritis - strong muscles support and stabilize joints, thus reducing pain and further injury.
- Decrease fatigue
- Improve function and activities of daily living

Important Considerations and Special Precautions for Veterans with Arthritis, Joint or Muscle Pain

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 the type of physical activity. Veterans with severe pain or restricted range of motion in joints may benefit from a physical therapy consultation to design an individualized program. The following considerations apply to patients with arthritis or chronic joint or muscle pain:

- Deconditioned and poorly supported joints may be at increased risk for injury from greater impact or poorly controlled movement.
- Veterans may not be able 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. Pool temperature should be 83-88°F to help relax muscles and reduce pain.

Suggestions for Physical Activity for Veterans with Arthritis, Joint or Muscle Pain

Counsel the Veteran with arthritis or joint pain to:

- Select shoes with maximum shock absorption
- Increase activity slowly and gradually progress
- Avoid high-repetition, high-resistance, and high-impact exercises
- Avoid overstretching the joints
- Consider exercising during peak medication times
- Avoid stair climbing, fast jogging, or running in Veterans with arthritis in the hip or knee
- Stop exercising if severe pain, discomfort, or swelling develops (some discomfort during or immediately after physical activity is normal, but pain 2 hours post-physical activity should reflect the Veteran's need to decrease intensity of the physical activity in future sessions)
- Use ice after physical activity to enhance pain management

Counsel the Veteran with FM to:

- Set a goal that will lead to increased muscular strength and endurance
- Stress cumulative aerobic exercise achieved with short bouts, as extended periods of cardio can exhaust Veterans and cause them the need to recover for several days
- Try to hold weight in contracted state for 30 seconds and work up to 90 seconds for strength training; later, weight can be increased

Keep in mind that pain may worsen before it gets better for individuals with joint and muscle pain. Listening to the body and gradually increasing time and intensity is ideal and essential for exercise adherence. Consider doing all activities in a non-weight bearing mode such as in the water or in a seated position. Once strength, endurance,

and flexibility are developed, moving to more weight bearing activities for longer sessions is ideal. The old saying, “no pain, no gain,” is the biggest physical activity myth, especially when working with Veterans experiencing joint and muscle pain. Finding an aerobic exercise program Veterans can do without pain is essential. Again, it is common that after Veterans start, their bodies will change and what was once difficult and painful has the potential to become more doable and less painful as the muscles supporting painful joints become stronger. Weight loss also results in less inflammation in the joint.

Back Pain and/or Spinal Disc Disease

Chronic back pain may reduce the Veteran’s ability to exercise or perform certain activities during acute episodes of pain. However, physical activity may result in improvement in chronic back pain and prevention of future acute episodes. In the case of severe acute back pain or a diagnosed herniated disc, exercise is not recommended unless prescribed by a physician and monitored by a physical therapist.

Goal for Veterans with Back pain and/or Spinal Disc Disease

- 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 for Veterans with Back Pain and/or Spinal Disc Disease

- Patients with new back problems should have these evaluated before beginning a new program of physical activity. If Veterans have been found to have conditions such as spondylolysis, spondylolisthesis, herniated disc, or spinal stenosis, consult with the specialist or Primary Care Provider (PCP) who is managing this problem to obtain physical activity restrictions.
- Most Veterans with low back pain benefit from specific flexibility exercises of the lower extremities.
- Back and trunk muscle conditioning and stretching exercises should be part of a regular program, as they can improve chronic low back pain and possibly prevent future episodes of acute pain. It is recommended to wait at least 2 weeks after an acute episode of low back pain before initiating moderate-level physical activity.
- Counsel the Veteran to gradually increase time and intensity of physical activity, slowing down if pain is provoked.

Suggestions for physical activity for Veterans with back pain and/or spinal disc disease

- Veterans should be cautioned to avoid exercising at a level that produces significant low back pain. During acute episodes, stick with light intensity aerobic exercise that minimally stresses the back, like swimming, walking, stationary

cycling, and recumbent elliptical. Avoid high impact activities such as stair climbing, high impact aerobic dancing, and running.

- During strength training, advise the Veteran to increase the number of repetitions and not the weight or resistance. Consider utilizing a chair if pain is felt in the back when standing or use a wide tandem stance (feet at about hip-distance apart with one foot ahead of the other to promote balance) when lifting or using resistance tubing.
- Before exercise, have the Veteran focus on engaging their core muscles before any movement takes place.
- For weight loss and weight maintenance, these physical activity goals still apply:
 - Aerobic activity 5+ days/week, 60 minutes of moderate-intensity activity
 - Strength training 2-3 days per week. Core conditioning should be stressed for this population. Other non-conventional core exercises include yoga, Pilates, hula hooping, belly dancing, and gyrokinesis (spiral core training).
 - Pay careful attention to stretching hamstrings, hip flexors, back, gluteus, and quadriceps as these muscles often tighten to cope with pain.

Blood Disorders and Use of 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 for Veterans with Blood Disorders and Use of Blood Thinners

- Increase endurance
- Increase skeletal muscle function
- Help compensate for decreased oxygen-carrying capacity that may result from blood disease

Important Considerations and Special Precautions for Veterans with Blood Disorders and Use of Blood Thinners

- 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 Veterans are likely to have an exaggerated heart rate response to physical activity, 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 physical activity 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 physical activity.
- 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 and joint trauma. Swimming, stationary cycling, and other non-weight-bearing activities are recommended for these Veterans.
- 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. Use of these agents can lead to gastrointestinal ulcers and bleeding.
- Consult a physician with any questions or concerns.

Suggestions for Physical Activity in Veterans with Blood Disorders and Use of Blood Thinners

- Veterans with blood disorders may experience fatigue with physical activity. Consider scheduling 10-minute physical activity sessions at least three to four times per day to prevent extreme fatigue.
- Strength training should be under supervision with some medications. Consult the Veteran's PCP before prescribing a home strength training program.
- Stretch every day to increase muscle flexibility and joint range of motion.

Coronary Artery Disease (CAD), History of Myocardial Infarction (MI), and History of Unstable and Stable Angina

Physical activity plays an important role in both the prevention of and rehabilitation from many forms of heart disease. Physical activity can have a positive influence on many of the factors that increase heart disease risk such as high blood pressure, high cholesterol, diabetes, and obesity. Both the *MOVE!23 Staff Report* and the *MOVE!® Physical Activity Decision Aid* provide guidance for addressing physical activity recommendations in Veterans with diagnosed and undiagnosed symptoms of heart disease (shortness of breath, chest pain, or discomfort). Patients with cardiovascular disease should have an evaluation by their medical provider. Medical providers can refer to the *Pre-Exercise Flowchart* for more information on evaluating Veterans prior to making physical activity recommendations.

For Veterans with a recent cardiovascular event, referral to a formal cardiac rehabilitation program is recommended to help establish functional capacity, set

appropriate training limits, and provide supervision. Medications for Veterans with heart disease and/or hypertension often decrease heart rate and blood pressure resulting in altered exercise response, early fatigue, and limited exercise tolerance. For this reason, ratings of self-perceived exertion (i.e., the Borg Scale) should be used in addition to target heart rate for monitoring activity intensity.

Goals for Veterans with Coronary Artery Disease (CAD), History of Myocardial Infarction (MI), and History of Unstable and Stable Angina

- Decrease fatigue in daily activities
- Improve cardiopulmonary function
- Improve work and recreational performance
- Improve blood lipid and glucose profile
- Decrease risk of mortality from cardiovascular disease

Important Considerations and Special Precautions for Veterans with CAD, MI, and History of Unstable and Stable Angina

Any Veteran with signs or symptoms of unstable angina should be immediately referred to a physician for evaluation and possible stress testing.

- Veterans with heart disease are more likely to demonstrate limiting signs or symptoms such as angina, BP fluctuations, difficulty breathing, palpitations, irregular heart rates, and lightheadedness.
- Medications for Veterans with heart disease often decrease heart rate (HR) and BP resulting in altered exercise response. For patients using beta-blockers (BBS), HR is lowered, resulting in the need to alter/reduce the target HR range for physical activity. Consider recommending 50-70 percent, as Veterans on BBS will not be able to achieve 85 percent.
- Prior to beginning a program of physical activity, Veterans with stable angina should be able to identify their anginal symptoms and be knowledgeable about their prescribed immediate treatment for angina.
- An upper endurance training target that is 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 blood pooling in the lower extremities that can lead to hypotension. Discuss symptoms of hypotension with Veterans at-risk for this problem, and coach Veterans what to do during a hypotensive episode (notify others, sit down).
- Advise the Veteran to be aware of changes in anginal symptoms before, during, or after physical activity and to notify their PCP about such changes.

Suggestions for Physical Activity for Veterans with CAD, MI, and History of Unstable and Stable Angina

Consider exercise clearance for Veterans first.

- If cleared for physical activity, remember that most will be very poorly conditioned and may have limitations on weight lifting.
- After warm-up, start small with 10-minute aerobic exercises, asking the patient to monitor their HR (Most Veterans with a history of MI and angina will be on BBS which should prevent any large increases in heart rate.)
- Start a strength training program that utilizes resistance bands and the Veteran's body weight. Even lifting arms may be enough resistance for initial training. Progress as needed.
- Do flexibility exercises everyday using 3+ sets, holding for 15-30 seconds. Veterans with CAD may suffer from a lack of flexibility, thus contributing to disabilities in everyday activities.

Diabetes

Diabetes mellitus is a metabolic disease of three major types: type 1, type 2 (typically adult onset, obesity-related), and gestational (during pregnancy). Veterans with diabetes have a higher risk for secondary health conditions, including CAD, blindness (retinopathy), kidney disease (nephropathy), neuropathy, peripheral vascular disease, and amputations. Physical activity and proper nutrition are both important components of good diabetes control.

Goals for Veterans with Diabetes

- Improve blood glucose control
- Improve insulin sensitivity and decrease need for medications
- Decrease body fat
- Improve cardiovascular health by reducing certain risk factors

Important Considerations and Special Precautions for Veterans with Diabetes

- Referral to a PCP for consideration for exercise testing prior to beginning a program of *vigorous* physical activity is recommended for all Veterans with diabetes. Some sources also recommend a medical evaluation for patients with diabetes planning a program of *moderate* activity who are at-risk for CAD based on the criteria below:
 - Type 1 diabetes, over 30 years of age
 - Type 1 diabetes longer than 15 years
 - Type 2 diabetes, over 35 years old
 - Type 1 or 2 diabetes with one or more CAD risk factors
 - Suspected or known CAD
 - Presence of microvascular diabetic complications (retinopathy, nephropathy, neuropathy)

- Initiating a physical activity program should be delayed in Veterans with diabetes who have active retinal hemorrhage, illness or infection, or unstable blood sugars.
- Veterans with diabetes may be prone to hypoglycemia (low blood sugar) resulting from the combination of increased physical activity and medications. Review symptoms of hypoglycemia:
 - Increased heart rate
 - Increased sweating
 - Feeling shaky, anxious, or hungry
 - Dizziness or lightheadedness

Strategies to Reduce the Risk of Hypoglycemia

- Counsel the Veteran to perform exercise at the same time each day to minimize problems with exercise-induced hypoglycemia. If possible, exercise in the morning is preferred. Exercise should be avoided in the late evening to prevent nocturnal insulin reaction and resultant hypoglycemia.
- Advise Veterans with diabetes who are physically active that they may need to adjust their dietary intake. Alternately, with physician guidance, they may need to decrease insulin doses or medications around the time of physical activity to reduce risk for exercise-induced hypoglycemia.
- Encourage the Veteran to keep fast-acting glucose tablets or foods around during physical activity (i.e., fruit juice) to treat an exercise-induced episode of hypoglycemia.
- Remind Veterans with diabetes to avoid skipping meals and to check blood sugar levels regularly.
- Remind Veterans to check blood sugars before and after physical activity.
- Never exercise immediately after a short-acting insulin injection; wait at least 90 minutes.
- Do not exercise during peak insulin action.
- Stay hydrated - because dehydration plays a major role in blood sugar fluctuations.

Checking Blood Sugar

- Type I diabetes:
 - **NO EXERCISE** if blood glucose is >250mg/dl with present ketones
- Type II diabetes:
 - **NO EXERCISE** if blood glucose >300mg/dl
 - **NO EXERCISE** if blood glucose <100mg/dl
 - Blood glucose 100-250mg/dl is safe

Veterans with diabetes may have autonomic neuropathies and therefore may have an increased likelihood of hypotension related to dehydration. Advise Veterans to drink plenty of fluids before, during, and after exercise (but to avoid sweetened sodas and juices, which may cause high blood sugars).

Veterans with diabetes should practice good foot care:

- Wear appropriate, well-fitting shoes and replace them when they begin to wear out. Check the inside of shoes before putting them on
- Wear clean, smooth-fitting socks. Cotton socks provide the best comfort and support; also, socks that “wick moisture away” are ideal
- Inspect the feet for redness, warm spots, or blisters after exercising
- Advise Veterans to call their PCP immediately if they see problems

Lastly, they should always carry identification indicating diabetic status and medications.

Suggestions for Physical Activity for Veterans with Diabetes

- Veterans who take medication as prescribed, have well-controlled blood sugars, and carry glucose tablets can follow all physical activity recommendations for healthy individuals.
- Veterans with diabetes will benefit from aerobic, strength, and flexibility training.
- Make sure they hydrate, check blood sugars pre- and post-exercise, and exercise with others during periods of insulin/medication adjustment.
- It is common for Veterans with diabetes to have frequent medication changes as their weight declines. Encourage Veterans to return to their PCPs at around the 15-20-pound weight loss mark, or if they are experiencing uncontrolled blood sugars as they lose weight and become more active.

Hypertension

Veterans with hypertension can reduce their BP through a program of regular physical activity.

Goals for Veterans with Hypertension

- Halt the trend of rising BP, which comes with age, inactivity, poor diet, and obesity
- Reduce or eliminate the need for antihypertensive medications

Important Considerations and Special Precautions for Veterans with Hypertension

Veterans with Controlled Hypertension

- 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.
- BP benefits can be obtained from aerobic training ranging from low-to-high intensity.

- Strength training should not be the only component of physical activity for Veterans with hypertension as it has not consistently been shown to lower BP. Strength training should start with low resistance and more repetitions.
- Focus on breathing. Valsalva Maneuver is common with novice strength training. Counting aloud will prevent this as well as associated increases in BP.
- Antihypertensive medications, specifically BBS, may lower resting HR and limit the HR response to physical activity causing early fatigue and limited exercise tolerance. Advise the Veteran of this possibility to avoid discouragement, and remind the Veteran that even lower intensity levels of physical activity will be beneficial.
- Advise the Veteran to avoid abrupt cessation of physical activity and use a longer cool-down period. This helps to prevent a post-physical activity fall in BP related to the use of certain vasodilating antihypertensive agents (e.g. hydralazine, nitrates).
- Some Veterans may be tempted to stop their BP medication because they believe it is no longer necessary if they are exercising. Remind them not to stop or decrease their medication without first discussing this with their PCP.
- Those adhering to both a diet and fitness weight loss plan may notice tendencies to become light-headed or dizzy. This may be a sign of too much medication. Refer the patient to a physician. For immediate relief of symptoms, recommend ice cold water while sitting.

Resistant Hypertension (Diastolic BP >90mmHg despite use of three or more antihypertensive medications and/or severe asymptomatic hypertension [>180/120mmHg without symptoms or end-organ damage])

- Should delay starting a program of physical activity until BP has been lowered and stabilized with medication.

Veterans with Malignant Hypertension, With or Without Symptoms (systolic \geq 180 mmHg or Diastolic BP \geq 120 mmHg hypertensive emergency)

- Counsel Veteran to seek immediate emergency medical care and delay starting a program of physical activity until BP has been lowered and stabilized with medication.

Suggestions for Physical Activity for Veterans with Hypertension

- Becoming physically active is among the best things the hypertensive Veteran can do.
- With good BP control, hypertensive Veterans can follow the same exercise prescription as other presumably healthy adults.
- During strength training, it is imperative to count repetitions to prevent unnecessary BP spikes related to the Valsalva Maneuver.
- Alongside programmed aerobic and strength activities, mind-body and flexibility exercises can help reduce BP over time. Consider yoga, Tai Chi, Pilates, and other quiet and mindful exercises.

- It is possible that with weight loss, hypertension medication dosage may be reduced or eliminated. Encourage Veterans to work with their PCPs as they lose weight.

Multiple Sclerosis (MS)

MS is a disease that affects the central and peripheral nervous system. This disease presents with multiple areas of inflammatory demyelination. It is important to pay careful attention to progression of disease as well as associated features such as:

- Fatigue
- Blurred or periodic loss of vision
- Balance issues
- Heat sensitivity
- Sensory deficits
- Loss of bladder control
- Neurologic impairment

Goals for Veterans with MS

- Increase aerobic activity to reduce risk of CAD and improve cardiovascular health
- Reduce spasticity through gaining muscular strength and endurance
- Increase joint range of motion (ROM) and improve balance through flexibility
- Increase energy level while combating fatigue

Important Considerations and Special Precautions for Veterans with MS

Many MS patients choose not to exercise for a variety of reasons. Due to a lack of balance, muscle strength, and lower limb spasticity, MS patients may find choosing the right activity to be challenging.

- Deconditioned individuals should start slowly on a non-weight-bearing machine, such as a recumbent bike, recumbent elliptical, or do water activities.
- Heat is a major factor for MS patients. Consider choosing water over land physical activity, wearing presoaked neck scarves, cooling vests or skin surface misting, or ingestion of ice chips during physical activity. Managing problems associated with heat during physical activity will improve tolerance and enjoyment of physical activity.
- Balance issues are a combination of poor muscle strength and possible neurologic impairment. Improving strength will decrease the risk of falls while increasing the muscles ability to sustain longer periods of physical activity. Neurological impairments may limit Veteran's muscles to notice the changes in strength, so structure the physical activity program in the beginning with days of rest in between days of work.

- Flexibility is most important for MS patients. Encourage activities that increase flexibility while working on balance such as yoga and Tai Chi. Encourage Veterans to stretch one to two times daily, holding stretches for 30-60 seconds. Stretching will likely need to be carried out in a supine or seated position to use gravity and reduce likelihood of falls.

Suggestions for Physical Activity for Veterans with MS

- Start with three aerobic sessions per week, either one 30-minute session, or three 10-minute sessions
- Strength training should only be done on non-endurance training days
 - 2 days/week
 - 8-15 repetitions
 - Minimum of 1 minute rest between sets
- Flexibility is imperative
 - 1-2 times/day is ideal
 - Hold each stretch 30-60 seconds, using gravity to assist with stretching into full ROM

Osteoporosis

After age 35, a small degree of age-related bone loss is normal. In some, however, bone loss is more rapid, leading to osteoporosis. This condition increases the risk of bone fracture, particularly in the wrist, hip, and spine. Those at particularly high risk for osteoporosis include older, white, or Asian post-menopausal women of low body weight. Other risks include premature menopause or a history of prolonged periods of absent menses. Males with low testosterone are also at risk.

For both males and females, those at high risk include those with a family history, long-time use of corticosteroids, vitamin D deficiency, or secondary hyperparathyroidism. Other risks include premature menopause, history of prolonged periods of absent menses, chronic smoking, excessive alcohol consumption, low dietary calcium, gastric bypass surgery, and physical inactivity.

Exercise increases bone density and can prevent osteoporosis in children, healthy adults, and non-osteoporotic post-menopausal women. In older Veterans with osteoporosis, dramatic increases in bone mass with exercise are unlikely; small improvements in or maintenance of existing bone mass are possible.

Goals for Veterans with Osteoporosis

- Stimulate bone growth and decrease further bone loss
- Maintain bone density
- Increase muscle strength
- Improve balance; reduce fall risk

Important Considerations and Special Precautions for Veterans with Osteoporosis

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 (i.e., heavier weight).

Suggestions for Physical Activity for Veterans with Osteoporosis

- 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. Do not prescribe step aerobics or jogging as they present risk for a fall.
- Veterans with osteoporosis may have anxiety about falling due to increased fracture risk. Careful attention to making the environment free of tripping hazards may help alleviate some of this anxiety. Specific hazards include loose mats and carpeting.
- Specific balance exercises (i.e., stork stands) will make the patient feel more comfortable.
- Participation in a supervised program may also help reduce anxiety.
- Veterans should participate in aerobic, strength, and flexibility exercise at the same dose as healthy individuals.

Parkinson's Disease

Parkinson's disease (PD) is a progressive, degenerative neurological disease that is very complex. It is diagnosed by clinical symptoms such as tremors, bradykinesia, impaired postural reflexes, and stiffness. PD can be diagnosed as young as 40 and up to the age of 75. Severe PD is often associated with dementia. It is important to determine which stage the Veteran is in before considering participation in physical activity. The following section will describe stages 1-3 (of 5); for Veterans with more advanced PD, it is recommended to consult a physician and seek supervised facilities or have the patient take place in exercise programs within their living facilities. Most PD patients past stage 3 will be in assisted living facilities. Many of these facilities will have supervised physical activities available.

- Stage 1: signs and symptoms are mild and unilateral. Small tremors of only one limb and the disease not very disabling
- Stage 2: symptoms are bilateral with postural and gait changes and the patient has minimal disabilities
- Stage 3: significant body movement changes especially notable in walking (shuffling gait/falls)

Goals for Veterans with PD

- Improve range of motion and reduce spasticity
- Prevent deconditioning and obesity
- Maintain the ability to perform activities of daily living and mobility, as well as to prevent injury through muscular balance
- Provide psychological and/or recreational benefits

Important Considerations and Special Precautions for Veterans with PD

- Dementia is common in PD. Assess for progression of dementia before starting physical activity. Veterans may need written instructions that are specific on how to do exercises or set-up machines. Pictures may be necessary.
- With progressed PD, patients may experience “freeze” of their gait. This describes an individual’s inability to walk or complete an activity, as if they are frozen. During “freeze” episodes, exercise is contraindicated.
- With PD patients, fear of being able to succeed with a complex program due to movement issues is a common exercise barrier. It is important to assess individual abilities, while making the exercise program safe, simple, and providing many options.

Suggestions for Physical Activity for Veterans with PD

- In PD, balance and gait are usually affected with progression of disease. Choose seated exercise equipment such as an arm ergometer, cycle ergometer, recumbent elliptical, or supervised water-walking/aerobics.
- Some patients with PD may benefit from dance in conjunction with music, as this can reduce “freezing.”
- Utilizing assistive devices such as a cane or walker may be necessary with later stages of disease.
- Strength and flexibility training for upper quadrant and trunk should initially be emphasized as these are the first to be affected by PD.
- Supervised physical activity sessions are recommended in the beginning of a program or for patients experiencing a rapid disease progression.

Peripheral Vascular Disease (PVD)

PVD refers to hardening and blockages of the arteries. Symptoms can vary from mild pain with physical activity (termed claudication) to pain at rest that may indicate limb-threatening ischemia.

Goals for Veterans with PVD

- Reduce severity and frequency of claudication symptoms.
- Reduce other cardiovascular risk factors that accompany peripheral artery disease.

Important Considerations and Special Precautions for Veterans with PVD

- Because Veterans with PVD often have co-existing coronary heart disease, evaluation by a physician is recommended. Consider exercise testing and/or participation in a supervised cardiac rehabilitation program.
- Seek medical attention for extremity pain that does not resolve within a reasonable amount of time. This may vary in each individual, but pain lasting beyond several (4) hours may indicate limb-threatening ischemia and needs immediate medical attention.
- Gradually increase physical activity 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, foot hygiene, and vigilance for early problems is advised.

Suggestions for Physical Activity for Veterans with PVD

- Advise Veterans to perform interval aerobic activity (e.g., walking or stair-climbing) that does not exceed a score of 7 on a 11-point pain scale (0-no pain, 10-maximal pain), then stop, rest, and allow full recovery before beginning a new interval.
- Do flexibility training 7 days/week.
- Do strength training with lighter weight; higher repetitions are ideal to prevent claudication symptoms.
- It is ideal for the patient to exercise in a supervised location.

Renal Disease

Renal disease, or chronic kidney disease (CKD), is the progressive loss of renal function over time. Diabetes and hypertension are the two leading causes of CKD. There are five stages of renal disease, with chronic renal failure being the most severe

stage. Stages are determined by creatinine levels in the blood. High levels are associated with the kidney's inability to excrete waste from the body. There are no clear recommendations or goals for physical activity associated with renal disease. Rather, physical activity programs should start at a lower intensity and progress for a minimum of health benefits.

Goals for Veterans with Renal Disease

- Maintain activity levels
- Maintain the ability to perform activities of daily living and mobility, as well as to prevent injury through muscular balance
- Provide psychological and/or recreational benefits

Important Considerations and Special Precautions for Veterans with Renal Disease

- Medical clearance should be sought by a nephrologist.
- Exercise should not be performed on days with dialysis treatment. However, on days of non-dialysis treatment, exercise should take place.
- Use RPE to assess exercise intensity as HR is limited due to medications.
- Patients with peritoneal dialysis may try exercising with fluid in the abdomen. However, if this becomes uncomfortable, patients should be encouraged to drain fluids before exercising.
- For transplant patients, it is possible to exercise during periods of rejection, but intensity and duration should be decreased.

Suggestions for Physical Activity for Veterans with Renal Disease

- For those with CKD, any movement is good.
- Encourage 10-minute exercise bouts on recumbent equipment or in the pool.
- Strength training 2-3 days per week on non-dialysis days with lighter weight and higher repetitions is recommended.
- Flexibility training in a seated position or using assistive devices (wall, stretch strap, partner) is recommended.

Respiratory Disease

Respiratory disease includes conditions such as chronic obstructive pulmonary disease (COPD), emphysema/chronic bronchitis, asthma, and pulmonary fibrosis. People with respiratory disease often tend to gradually decrease activity due to increased breathlessness and fatigue.

Goals for Veterans with Respiratory Disease

- Improve functional status with respect to pulmonary symptoms such as dyspnea and fatigue
- Improve cardiovascular function
- Increase muscle strength

Important Considerations and Special Precautions for Veterans with Respiratory Disease

- In new cases, a medical evaluation is recommended prior to increasing physical activity to distinguish between several possible causes of limited physical activity capacity in pulmonary patients. Cardiovascular co-morbidities are common in those with respiratory diseases.
- 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 is recommended for oxygen-dependent patients.
- Consultation with a respiratory therapist to evaluate, teach, and ensure effective use of respiratory medications and oxygen 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.
- Respiratory symptoms may limit physical activity of sustained duration. Physical activity sessions may need to be 5 to 10 minutes in duration with gradual increases in work intervals.
- Veterans with pulmonary conditions should always carry or have immediate access to their bronchodilator inhalers (i.e., albuterol) in case of acute attacks.
- Pay careful attention to oxygen (O_2) saturation levels. It may be useful for Veterans to be provided with pulse oximeters or for clinics to have them readily available for use.

Suggestions for Physical Activity for Veterans with Respiratory Disease

- Until patients become familiar with an intensity that they can sustain, they should consider being active in a supervised location.
- Encourage the Veteran to work in small physical activity bouts throughout the day to total 30-60 minutes.
- Ask the patient to meet with a respiratory therapist to learn pursed lip breathing as well as how to monitor O_2 and heart rate.
- Stretching 5-7 days per week is ideal.
- It is possible for Veterans with respiratory diseases to improve their endurance, starting slow, and then gradually increasing in duration and intensity. This improved endurance translates to all areas of their life, including activities of daily living.

Spinal Cord Injury

Spinal Cord Injury (SCI) is a complete or partial lesion of the spinal cord resulting in functional loss of sensory, motor, and/or autonomic function. SCI severity depends on the level and completeness of the lesion. The physical ability of individuals with SCI is classified according to the amount of function retained and includes paraplegia or quadriplegia/tetraplegia.

Goals for Veterans with SCI

- Improve range of motion and reduce spasticity
- Prevent deconditioning and obesity
- Maintain the ability to perform activities of daily living and mobility, as well as to prevent injury through muscular balance
- Provide psychological and/or recreational benefits

Important Considerations and Special Precautions for Veterans with SCI

Consultation with the SCI Team, physical therapist, kinesiotherapist, or other exercise specialist is recommended to assist the Veteran with designing 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 (bpm)
- Poor adaptation to stressors of heat and cold causing unusual sweating, blood shunting, shivering, and nasal congestion
- Orthostatic- and exercise-induced hypotension
- Absence of forced expiration during physical activity
- 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
- Potential for autonomic dysreflexia

Veterans with SCI lesions above the sacral level experience a loss of control of their bowel or bladder. Instruct them to monitor their urinary cycle and be sure to empty their bowel and bladder before starting physical activity.

Patients with SCI 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 activity. Instruct the Veteran 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.

Prolonged sitting without pressure relief and abrasion/bumping of bony prominences (hips, ischial tuberosities, sacrum, coccyx) can lead to pressure sores and should be avoided by Veterans with SCI. 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.

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. In Veterans with hypotension due to autonomic dysfunction, use of elastic support stockings or abdominal binders may be necessary to help maintain blood pressure.

Suggestions for Physical Activity for Veterans with SCI

- Assessing the severity of the injury will ultimately map the course of physical activity prescription.
- SCIs do limit cardiac output, thus patients may not be able to work out at high intensities for long periods of time.
- Be creative and considerate with exercise prescription. Recognize that there may be some paralyzed muscles, but the upper body is completely capable of creating cardiovascular responses to exercise.
- Use recumbent elliptical, arm bikes, or chair aerobics (utilizing arm movements) for cardiovascular exercise.
- Consider resistance bands, pulley systems, and even strength machines for strength training. If lower body is paralyzed only, Veterans should focus on upper body strength with heavier weights and fewer repetitions.
- Flexibility is very important. Use a partner to help stretch lower body limbs.

Stroke (Cerebrovascular Accident-CVA)

Stroke is a sudden central nervous system impairment in which the flow of blood to the brain is halted through either ischemia (blood clot) or hemorrhage (bleeding).

Goals for Veterans with Stroke

- Improve overall cardiovascular fitness, strength, range of motion, and flexibility
- Decrease risk for additional strokes through improving blood pressure, weight, cholesterol levels, and glucose regulation

Important Considerations and Special Precautions for Veterans with Stroke

Veterans who have prior history of stroke or transient ischemic attack (TIA) often have other serious co-morbidities such as:

- Hypertension

- Diabetes
- CAD
- PVD
- Spasticity
- Paralysis
- Muscle weakness
- Falls risk

Evaluation and consideration for exercise testing and/or participation in a supervised rehabilitation program is recommended. Stroke patients 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 and/or lower extremities
- 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, kinesiotherapist, or other exercise physiologist/specialist is recommended for Veterans with moderate-to-severe functional deficits.

Suggestions for Physical Activity for Veterans with Stroke

- 30-60 minutes per day, 5-6 days/week on a stationary bike, walking, treadmill, elliptical, or recumbent stepping for aerobic training
- Minimum of one set of exercises for all major muscle groups. Consider 8-10 lifts at least 3 times per week
- Consider stretching everyday and before, during, and after physical activity

If balance is an issue due to stroke symptoms, consider physical activities where others will be around.

This chapter was reviewed and edited by the following VA clinical staff:

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8 Appendix

Appendix 8-1 Exercise Prescription



Exercise Prescription for: _____
Veteran's Name

F Frequency (Check one)

3 times per week: _____ times per day
3-5 times per week: _____ times per day
6-7 times per week: _____ times per day

I Intensity (Check all that apply)

Light

_____ Gardening
_____ Housework
_____ Stroll
_____ Other _____

Moderate (Check all that apply)

_____ Brisk Walking
_____ Elliptical Machine
_____ Bicycling
_____ Dancing
_____ Water Aerobics
_____ Other _____

T Time (Check one)

_____ 5-10 minutes per session
_____ 10-30 minutes per session
_____ 30 to _____ minutes per session

T Types of Activity

The following activities are NOT recommended for you:

_____ No restrictions (participate in any activity you wish)

MOVE!® clinician signature: _____

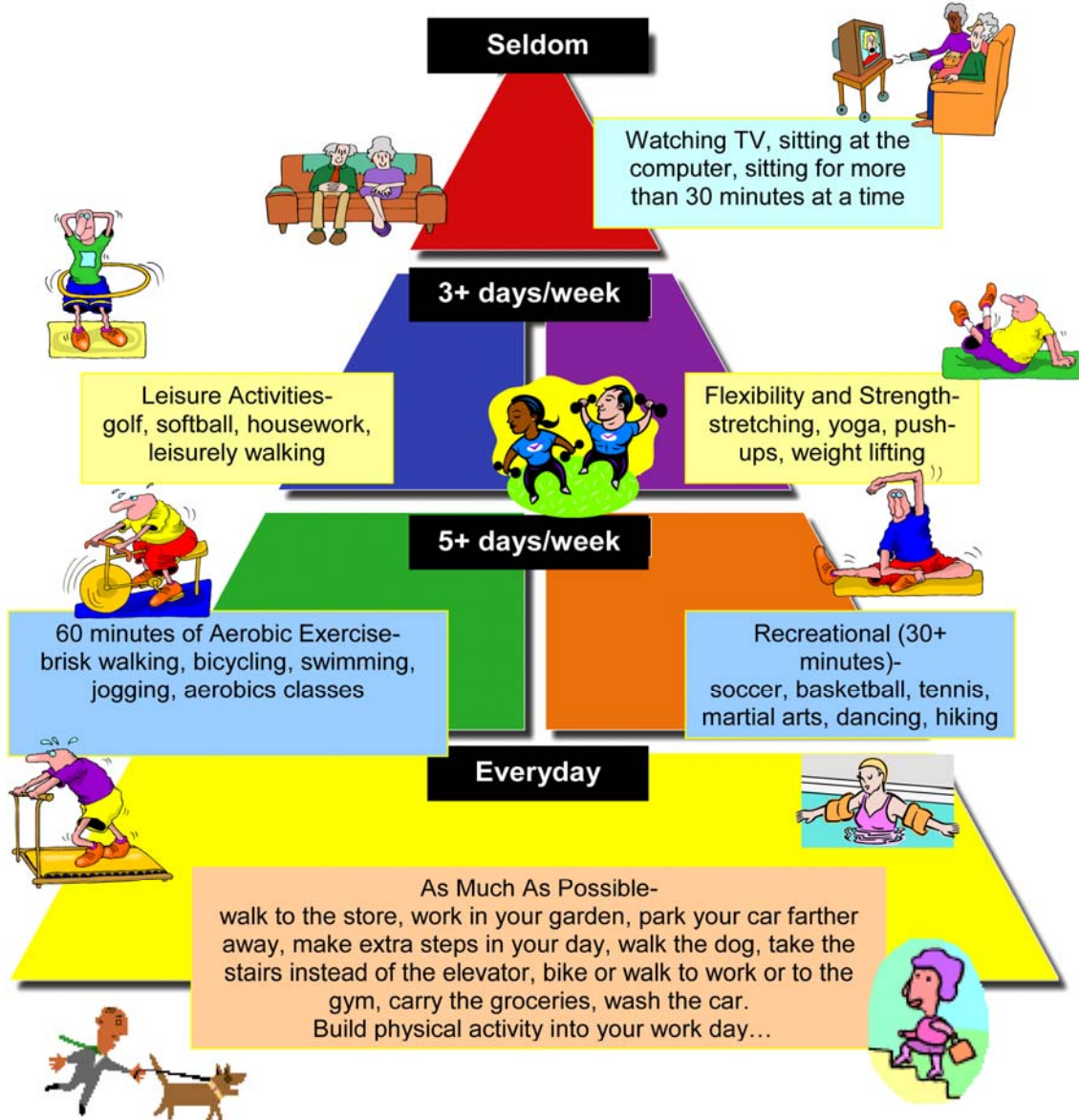
Veteran signature: _____

Date to reassess goal(s): _____

Appendix 8-2
Physical Activity Pyramid

Physical Activity Pyramid

Be creative in finding ways to stay active!



P26 Version 3.5
www.move.va.gov



Appendix 8-3 Physical Activity Decision Aid

1. Acutely ill? No ↓	Yes →	Delay discussion of physical activity until condition improved/resolved <i>Acute infection, illness, or injury.</i> For example: acute low back pain, active retinal hemorrhage, shortness of breath at rest, undiagnosed chest pains, symptomatic hernias. <i>Uncontrolled or unstable chronic conditions.</i> 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? No ↓	Yes →	Refer for medical evaluation prior to beginning moderate or vigorous physical activity <i>Heart Disease:</i> heart attack (MI), CABG/open heart surgery or angioplasty, angina, valvular heart disease, congestive heart failure, arrhythmias, pacemaker or implantable defibrillators <i>Peripheral Artery Disease:</i> bypass surgery in lower extremities, claudication, ischemic foot ulcers or amputation due to ischemia <i>Cerebrovascular Disease:</i> stroke, transient ischemic attack (TIA), carotid artery surgery <i>Pulmonary Disease:</i> COPD or emphysema, asthma, shortness of breath
3. Diabetes, HTN or ≥ 2 Cardiac Risk Factors? No ↓	Yes →	Moderate aerobic activity okay, refer for medical evaluation prior to vigorous activity 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? No ↓	Yes →	Moderate aerobic activity okay, refer for medical evaluation prior to vigorous activity or strength and flexibility training Chronic low back pain, symptomatic arthritis, amputation, spinal cord injury, osteoporosis
5. Man ≥45 y or Woman ≥55 y? No ↓	Yes →	Moderate aerobic, strength and flexibility training activity okay; refer for medical evaluation prior to vigorous aerobic activity
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 that can be maintained by an individual for a prolonged period (~45 minutes) with a gradual initiation and progression and is noncompetitive. Some increase in heart rate and breathing, and minimal sweating.

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

Appendix 8-4

Pre-Exercise Cardiovascular Risk Stratification Chart

Pre-Exercise Cardiovascular Risk Stratification

<p>1. Unstable Disease? → YES</p> <ul style="list-style-type: none"> • Ischemia • Uncompensated heart failure • Uncontrolled arrhythmias • Severe or symptomatic aortic stenosis • Other conditions aggravated by exercise. 	<p>Class D</p>	<ul style="list-style-type: none"> ✓ No activity recommended for conditioning purposes ✓ Treat subject and restore to class C or higher
<p>↓ NO</p> <p>2. Moderate to High Risk Individual? → YES</p> <ul style="list-style-type: none"> • Cardiomyopathy or low LV ejection fraction (< 30%) • Moderate valvular heart disease • Non-ischemic EST* abnormalities • Ventricular fibrillation or cardiac arrest that did not occur during acute ischemic event • Complex ventricular arrhythmias that are uncontrolled at mild to moderate work intensities with medication • Three vessel or left main disease • CAD with the following characteristics: <ul style="list-style-type: none"> ○ 2 or more MIs ○ NYHA Class 3 or higher ○ Exercise capacity < 6 METs ○ Horizontal or downsloping ST depression of 4mm or more ○ Angina or fall in SBP during exercise ○ Previous episode of primary cardiac arrest ○ Ventricular tachycardia at a workload of < 6 METs ○ Other associated problems that may be life-threatening • Lower risk individuals who are unable to self-regulate activity or to understand recommended activity level 	<p>Class C</p>	<ul style="list-style-type: none"> ✓ EST[†] required[†] for safety and prescriptive purposes. ✓ Activity should be individualized with exercise prescription by qualified personnel. ✓ Continuous ECG and BP monitoring during exercise session until safety is established (usually in 6-12 sessions). ✓ Medical supervision during all exercise session until safety is established. (i.e. formal rehabilitation program)
<p>↓ NO</p> <p>3. Lower Risk Individual? → YES</p> <ul style="list-style-type: none"> • Stable CAD with the following characteristics: <ul style="list-style-type: none"> ○ NYHA Class 1 or 2 ○ Exercise capacity > 6 METs ○ No evidence of heart failure ○ Ischemia free at rest and with exercise ≤ 6 METs ○ Appropriate SBP rise with exercise ○ No sequential ectopic ventricular contractions ○ Ability to self-monitor intensity of activity • Stable cardiomyopathy, congenital heart and valvular disease • EST* abnormalities that don't meet Class C 	<p>Class B</p>	<ul style="list-style-type: none"> ✓ EST[†] required[†] for safety and prescriptive purposes. ✓ Activity should be individualized with exercise prescription by qualified personnel. ✓ Continuous ECG and BP monitoring during exercise may be used during the early prescription phase. ✓ Medical supervision during the prescription phase, non-medical supervision for other exercise sessions until the individual understands how to monitor his or her activity. (i.e formal cardiac rehabilitation program at least initially)
<p>↓ NO</p> <p>4. Individual without known CAD? → YES</p> <ul style="list-style-type: none"> • Male ≥ 45 y or Female ≥55 y • Any age with Diabetes or ≥ 2 cardiac risk factors 	<p>Class A2 A3</p>	<ul style="list-style-type: none"> ✓ EST* recommended prior to vigorous[‡] activity ✓ No monitoring or supervision during exercise is required
<p>↓ NO</p> <p>5. Apparently Healthy Younger Individual with no more than 1 cardiac risk factor. → YES</p>	<p>Class A1</p>	<ul style="list-style-type: none"> ✓ No EST required prior to moderate or vigorous[‡] activity ✓ No monitoring or supervision is required

* EST = exercise stress test

† Within the past year

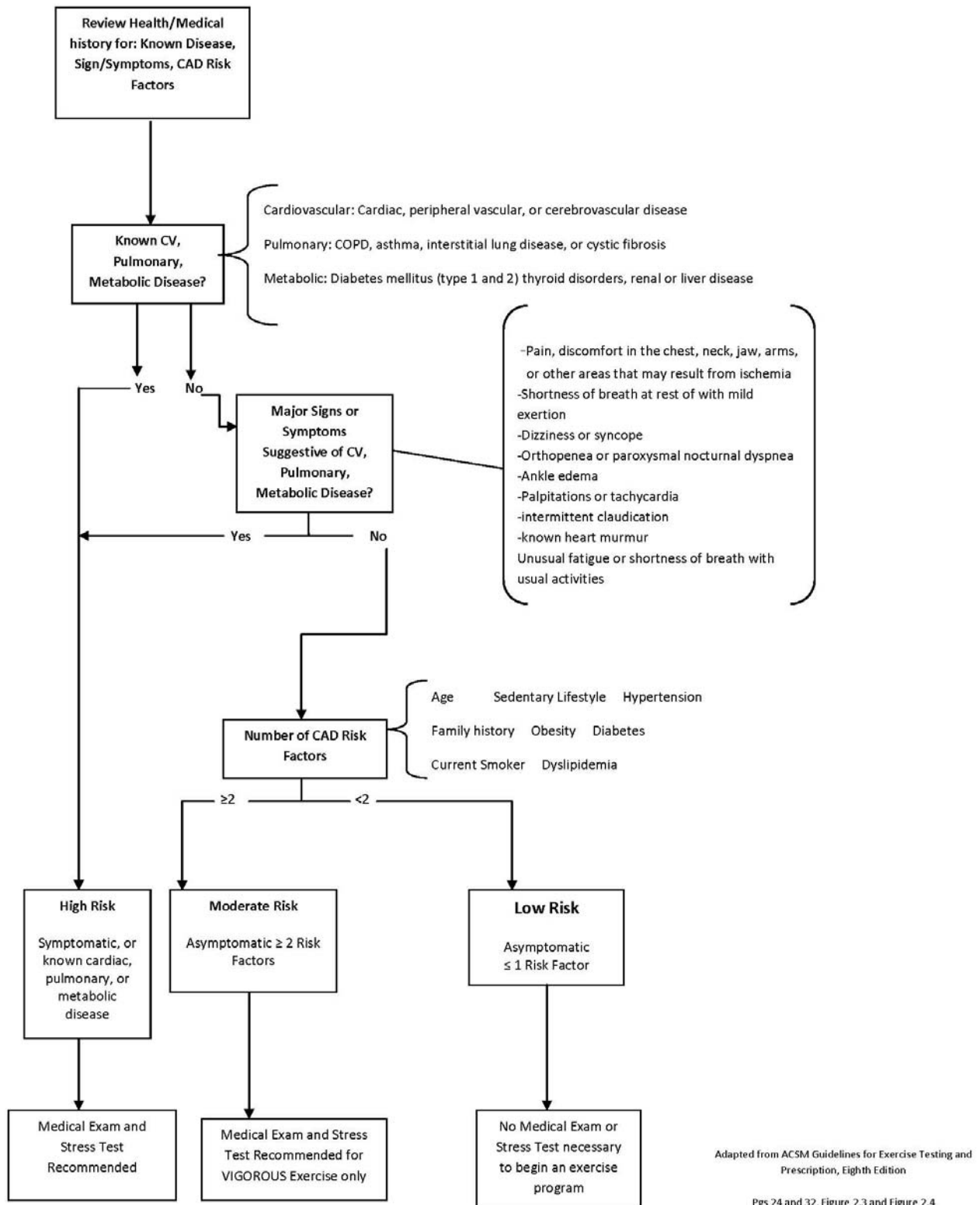
‡ Vigorous defined as activities ≥ 6 METs or exercise intense enough to represent a substantial cardiorespiratory challenge. Moderate activities defined as the equivalent of brisk walking (~3-4 MPH)

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):1893-92..

Appendix 8-5 Pre-Exercise Flow Chart



Appendix 8-6 Sample Physical Activity Plans

Some Veterans who are ready to increase their levels of physical activity may want more specific guidance than what is provided in the basic MOVE!® physical activity handouts. This section provides references to some aerobic, strength, and flexibility plans to address the needs of Veterans who want or need specific physical activity instruction. They are designed for beginners and can be adapted easily to meet individual needs. These sample plans are available as handouts.

The sample aerobic plan is an adaptation of “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 can be accessed at:

<http://www.hooah4health.com/toolbox/exRx/default.htm>

The sample strength and flexibility programs are taken from “Exercise: A Guide from the National Institute of Aging.”¹⁸ A hard copy of this guide was provided in the MOVE!® Toolkit along with an electronic PDF version. A hard copy of this guide and a video version can be ordered by both staff and Veterans at the following Web site:

<http://www.niapublications.org/exercisebook/exercisebook.asp>

Sample Aerobic Program

The Sample Beginner’s Aerobic Activity Plan is a sample 12-week plan to help 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. Review handouts for information on how to self-monitor the intensity of activity (i.e., using the Borg Scale). The days of the week on this plan may be adjusted to better fit the individual’s schedule.

For even more help with weight management, consider increasing the duration, frequency, and/or intensity of your activity. Even short bursts of increased intensity can enhance conditioning and caloric expenditure.

Sample Strength Program

The Sample Beginner’s Strength Activity Plan is available on the MOVE!® Web site.

About Strength Exercise

To do most of the strength exercises in this plan, the Veteran will need to lift or push weights or make use of his/her own body weight, and gradually increase the amount of weight used. Dumbbells or ankle/wrist weights sold in sporting-goods stores can be purchased and used as well as resistance tubing or bands. There are also alternatives

to the exercises in this plan, such as using gym equipment. Whatever options Veterans choose, helping them develop a well-rounded program based on the tools we have provided will increase exercise adherence.

How Much, How Often

- Muscle-strengthening exercises for all the major muscle groups should be performed two to three times a week.
- It is not recommended to perform muscle-strengthening exercises on consecutive days; instead, recommend Tuesday, Thursday, and Saturday as an option.
- Depending on one's condition, the amount of weight used may start at as little as 1 or 2 pounds or no weight at all. Sometimes, the weight of arms or legs alone is enough for a beginning muscle-strengthening program.
- Use a minimum weight the first week, and gradually add weight to challenge your muscles and benefit from the muscle-strengthening activities. Starting out with weights that are too heavy can cause injuries.

How to Do Strength Exercises

- Do 8-12 repetitions in a row. Wait 60-90 seconds, and then do another "set" of 8-12 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 limbs fall in an uncontrolled way; lowering slowly and with control is very important.
- It should feel somewhere between hard and very hard (15 to 17 on the Borg Scale) 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.
- If you can lift more than 12 times in a row without much difficulty, then it's too light for you. You can try increasing the amount of weight. Modest weight increases go a long way.
- Stretch after muscle-strengthening exercises, as this is when muscles are warmed up. If stretching before muscle-strengthening exercises, be sure muscles are warmed up first with light walking and arm pumping.

Safety

- Remember to continue breathing at all times during muscle-strengthening exercises. Exhale while lifting or pushing, and inhale when returning to the starting position. This may not feel natural at first and may require practice and concentration.
- If breathing on cue is difficult to remember, count out loud. It may facilitate breathing.

- When there is a history of a lower extremity joint replacement surgery, recommend that the Veteran confer with a medical provider for any possible contraindications before doing lower body exercises.
- Avoid jerking or thrusting weights into position or “locking” the joints into a tightly straightened position. This may lead to injury. Always use smooth, steady movements.
- Muscle soreness lasting up to a few days and slight fatigue are normal after muscle-strengthening exercises. Exhaustion, sore joints, and unpleasant muscle pulling lasting several days may indicate overexertion.
- No exercise should cause severe pain. The range within which arms and legs are moved should never hurt.

Progressing

- Gradually increasing the amount of weight used is crucial for building muscle strength.
- When you are able to lift a weight between 8 to 12 times, increase the amount of weight you use at your next session check this

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, and then add more weight.
- Keep repeating as you get stronger!

Sample Flexibility Program

Stretching the body’s muscles provides increased freedom of movement for both functional and recreational activities. Stretching can improve flexibility, but will not improve 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 4 times at each session. Slowly stretch into the desired position as far as possible without pain, and hold the stretch for 15 to 60 seconds. Relax, then repeat, trying to stretch farther.

Safety

- If you have had a hip or knee replacement, check with your physician before doing lower body exercises.
- Always warm up before stretching exercises. For example, if you are doing only stretching exercises on a day, do a little bit of easy walking or arm-pumping first.
- Stretching should never cause joint pain. If it does, you are stretching too far; 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 during stretches. While stretching, your arms and legs should be mostly straight with a very small bend maintained to avoid locking joints.
- Some exercises are performed while lying on the floor; however, there is no requirement to get on the floor to stretch. If the Veteran is afraid to lie on the floor because of concerns about the ability to get up, consider stretching in the pool, seated in a chair, or lying on an elevated bench. Refer to Table 8-6 *Sample Flexibility Exercise Plan*.

**Table 8-7
Sample Flexibility Exercise Plan**

Flexibility Exercise/Stretch	# of repetitions per set	# of sets per session	# of sessions per week*
Hamstrings	4 per side	1	After every aerobic or strength session
Alternative Hamstrings	4 per side	1	After every aerobic or strength session
Calves	4 per side	1	After every aerobic or strength session
Ankles	4 per side	1	After every aerobic or strength session
Triceps	4 per side	1	After every aerobic or strength session
Wrists	4 per side	1	After every aerobic or strength session
Quadriceps	4 per side	1	After every aerobic or strength session
Double Hip Rotation	4 per side	1	After every aerobic or strength session
Single Hip Rotation	4 per side	1	After every aerobic or strength session
Shoulder Rotation	4 per side	1	After every aerobic or strength session
Neck Rotation	4 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.**

Appendix 8-8 Reporting Mechanism for Pedometer Issues

By contract, the vendor that provides our pedometers must respond to quality concerns. To initiate this response, the clinician who becomes aware of a problem must complete a form called a Quality Improvement Report (QIR) and submit the QIR to our contracting officer at the National Acquisitions Center. To date, this vendor has been responsive to concerns. By contract, unless the vendor is unable to adequately resolve QIRs, then VHA must continue to use the same pedometer. The National MOVE!® team cannot file QIRs. Please do your part in maintaining quality control over the pedometers by filing a QIR if you encounter difficulties.

A pdf version (that can be completed electronically) of the QIR with instructions is attached. The form and instructions are also available on the MOVE!® SharePoint.

8

Links

The links from this chapter are listed below:

VA National Center for Health Promotion and Disease Prevention
<http://www.prevention.va.gov/>

Veterans Health Administration Office of Patient Care Services
<http://www.patientcare.va.gov/>

Weight Management Program for Veterans (MOVE!®)
<http://www.move.va.gov/>

NIH Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults: The Evidence Report (1998)
http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.htm

Screening and Interventions for Obesity in Adults: Summary of the Evidence for the US Preventive Services Task Force (2003)
<http://www.annals.org/content/139/11/933.full.pdf+html>

Screening for Obesity in Adults (2003)
<http://www.annals.org/content/139/11/930.full>

Handbook 1120.01. MOVE! Weight Management Program for Veterans (MOVE!)
http://www1.va.gov/vhapublications/ViewPublication.asp?pub_ID=2403

Joint Veterans Affairs/Department of Defense Clinical Practice Guideline for Screening and Management of Overweight and Obesity (2006)
http://www.healthquality.va.gov/obesity/obe06_final1.pdf

USPSTF Screening Recommendations
[Screening for and Management of Obesity in Adults: U.S. Preventive Service Taskforce Recommendation Statement](http://www.ahrq.gov/clinicalpractice/uspstf/screentest/obesity/obesitystatement.pdf)

Source for Steps Equivalents Table
<http://walking.about.com/od/measure/a/stepequivalents.htm>

8

References

1. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults-The Evidence Report. National Institutes of Health. *Obes Res.* Sep 1998;6 Suppl 2:51S-209S.
2. McTigue KM, Harris R, Hemphill B, et al. Screening and interventions for obesity in adults: summary of the evidence for the U.S. Preventive Services Task Force. *Ann Intern Med.* Dec 2 2003;139(11):933-949.
3. Screening for obesity in adults: recommendations and rationale. *Ann Intern Med.* Dec 2 2003;139(11):930-932.
4. Managing Overweight and/or Obesity for Veterans Everywhere (MOVE!) Program. 2006;
http://www.move.va.gov/download/Resources/1101.1HK3_27_06.pdf. Accessed March 2006.
5. VA/DoD Clinical Practice Guideline for Screening and Management of Overweight and Obesity: VHA; 2006.
6. VA/DoD Clinical Practice Guideline for Screening and Management of Overweight and Obesity. 2012; www.healthquality.va.gov.
7. Moyer VA. Screening for and Management of Obesity in Adults: U.S. Preventive Services Task Force Recommendation Statement. *Ann Intern Med.* Jun 26 2012.
8. *The 2008 Physical Activity Guidelines for Americans*: U.S. Department of Health and Human Services.
9. Troiano RP, Berrigan D, Dodd KW, Masse LC, Tilert T, McDowell M. Physical activity in the United States measured by accelerometer. *Med Sci Sports Exerc.* Jan 2008;40(1):181-188.
10. Matthews CE, Chen KY, Freedson PS, et al. Amount of time spent in sedentary behaviors in the United States, 2003-2004. *Am J Epidemiol.* Apr 1 2008;167(7):875-881.
11. CDC. Facts About County-Level Estimates of Leisure-Time Physical Activity. *Diabetes Public Health Resource* 2008;
http://www.cdc.gov/diabetes/pubs/factsheets/county_inactivity_estimates.htm, 2012.
12. *ACSM's Guidelines for Exercise Testing and Prescription*. 8th ed. Philadelphia: Wolters Kluwer/Lippincott Williams and Wilkins; 2010.
13. Wing RR, Phelan S. Long-term weight loss maintenance. *Am J Clin Nutr.* Jul 2005;82(1 Suppl):222S-225S.
14. Patel AV, Bernstein L, Deka A, et al. Leisure time spent sitting in relation to total mortality in a prospective cohort of US adults. *Am J Epidemiol.* Aug 15 2010;172(4):419-429.
15. Borg G. *Borg's Perceived Exertion and Pain Scales*. Champaign, IL: Human Kinetics; 1998.
16. Lee IM, Shiroma EJ, Lobelo F, Puska P, Blair SN, Katzmarzyk PT. Effect of physical inactivity on major non-communicable diseases worldwide: an analysis

- of burden of disease and life expectancy. *Lancet*. Jul 21 2012;380(9838):219-229.
17. Medicine ACoS, ed *Guidelines for Exercise Testing and Prescription*. 6th ed. Baltimore, Md.2000. Lippincott WaW, ed.
 18. Exercise and Physical Activity: Your Everyday Guide from the National Institute on Aging. 2009;
<http://www.nia.nih.gov/HealthInformation/Publications/ExerciseGuide/>.