Chapter 4. Active Adults
Adults who are physically active are healthier, feel better, and are less likely to develop many chronic diseases, such as cardiovascular disease, type 2 diabetes, and several types of cancer than are adults who are inactive. Regular moderate-to-vigorous physical activity also reduces feelings of anxiety and depression and improves sleep and quality of life. Even a single episode of physical activity provides temporary improvements in cognitive function and state anxiety. Adults who are more physically active are better able to perform everyday tasks without undue fatigue. Increased amounts of moderate-to-vigorous physical activity are associated with improved cardiorespiratory and muscular fitness, including a healthier body weight and body composition. Adults who are more physically active can more easily carry out daily tasks like climbing stairs, carrying heavy packages, and performing household chores. These benefits are true for men and women of all ages, races, and ethnicities.

Adults gain most of these health benefits when they do the equivalent of 150 to 300 minutes (2 hours and 30 minutes to 5 hours) of moderate-intensity aerobic physical activity each week. Adults gain additional and more extensive health benefits with even more physical activity. Muscle-strengthening activities also provide health benefits and are an important part of an adult’s overall physical activity plan. This chapter provides guidance for men and women ages 18 through 64 years.

Learn More
See Chapter 6, Additional Considerations for Some Adults. It discusses key guidelines for women during pregnancy and the postpartum period and for adults with chronic conditions or disabilities.

Key Guidelines for Adults

- Adults should move more and sit less throughout the day. Some physical activity is better than none. Adults who sit less and do any amount of moderate-to-vigorous physical activity gain some health benefits.

- For substantial health benefits, adults should do at least 150 minutes (2 hours and 30 minutes) to 300 minutes (5 hours) a week of moderate-intensity, or 75 minutes (1 hour and 15 minutes) to 150 minutes (2 hours and 30 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic activity. Preferably, aerobic activity should be spread throughout the week.

- Additional health benefits are gained by engaging in physical activity beyond the equivalent of 300 minutes (5 hours) of moderate-intensity physical activity a week.

- Adults should also do muscle-strengthening activities of moderate or greater intensity and that involve all major muscle groups on 2 or more days a week, as these activities provide additional health benefits.
Explaining the Key Guidelines

The key guidelines for adults focus on two types of activity—
aerobic and muscle strengthening. Each provides important
health benefits, as explained in Chapter 2, Physical Activity
and Health.

Aerobic Activity

Aerobic activities, also called endurance or cardio activities,
are physical activities in which people move their large
muscles in a rhythmic manner for a sustained period of
time. Running, brisk walking, bicycling, playing basketball,
dancing, and swimming are all examples of aerobic activities.
Aerobic activity makes a person’s heart beat more rapidly and
breathing rate increase to meet the demands of the body’s
movement. Over time, regular aerobic activity makes the
cardiorespiratory system stronger and more fit.

The purpose of aerobic activity does not affect whether or
not it counts toward meeting the key guidelines. For example,
physically active occupations can count toward meeting the
key guidelines, as can active transportation choices (walking
or bicycling). All types of aerobic activities can count as long
as they are of sufficient intensity. For health benefits, the total
amount of moderate-to-vigorous physical activity is more
important than the length of each physical activity episode.

How Much Total Activity a Week?

When adults do the equivalent of at least 150 minutes of moderate-intensity aerobic activity each week,
the benefits are substantial. These benefits include lower risk of all-cause mortality, coronary heart disease,
stroke, hypertension, type 2 diabetes, some cancers, anxiety, depression, and Alzheimer’s disease and other
dementias. Physically active adults also sleep better, have improved cognition, and have better quality of life.

As a person moves from 150 minutes a week toward 300 minutes a week, the health benefits become more
extensive. For example, a person who does 300 minutes a week has an even lower risk of heart disease or type
2 diabetes than a person who does 150 minutes a week.

Furthermore, adults who are regularly active at or near the higher end of the key guideline range—300 minutes
a week—gain additional health benefits. These additional benefits include further risk reduction for several
cancers and prevention of unhealthy weight gain (by physical activity alone).

The benefits continue to increase when a person does more than the equivalent of 300 minutes a week of
moderate-intensity aerobic activity. Research has not identified an upper limit of total activity, above which
additional health benefits cease to occur.
How Many Days a Week and for How Long?
Aerobic physical activity preferably should be spread throughout the week. Research studies consistently show that activity performed on at least 3 days a week produces health benefits. Spreading physical activity across at least 3 days a week may also help reduce the risk of injury and prevent excessive fatigue.

All amounts of aerobic activity count toward meeting the key guidelines if they are performed at moderate or vigorous intensity. Episodes of physical activity can be divided throughout the day or week, depending on personal preference.

How Intense?
The key guidelines for adults focus on two levels of intensity—moderate and vigorous. To meet the key guidelines, adults can do either moderate-intensity or vigorous-intensity aerobic activities, or a combination of both. It takes less time to get the same benefit from vigorous-intensity activities than from moderate-intensity activities. A general rule of thumb is that 2 minutes of moderate-intensity activity counts the same as 1 minute of vigorous-intensity activity. For example, 30 minutes of moderate-intensity activity is roughly the same as 15 minutes of vigorous-intensity activity.

The intensity of aerobic activity can be tracked in two ways—absolute intensity and relative intensity.

Absolute intensity is the amount of energy expended during the activity, without considering a person’s cardiorespiratory fitness. The energy expenditure of light-intensity activity is 1.6 to 2.9 times the amount of energy expended when a person is at rest. Moderate-intensity activities expend 3.0 to 5.9 times the amount of energy expended at rest. The energy expenditure of vigorous-intensity activities is 6.0 or more times the energy expended at rest.

Relative intensity is the level of effort required to do an activity. Less fit people generally require a higher level of effort than more fit people to do the same activity. Relative intensity can be estimated using a scale of 0 to 10, where sitting is 0 and the highest level of effort possible is 10. Moderate-intensity activity is a 5 or 6. Vigorous-intensity activity begins at a level of 7 or 8.

Learn More
See Appendix 1. Physical Activity Behaviors: Intensity, Bouts, and Steps for more information on using either method to assess intensity.
Table 4-1 lists some examples of activities classified as moderate-intensity or vigorous-intensity based on absolute intensity. Either absolute or relative intensity can be used to monitor progress in meeting the key guidelines.

Table 4-1. Examples of Different Aerobic Physical Activities and Intensities, Based on Absolute Intensity

<table>
<thead>
<tr>
<th>Moderate-Intensity Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Walking briskly (2.5 miles per hour or faster)</td>
</tr>
<tr>
<td>• Recreational swimming</td>
</tr>
<tr>
<td>• Bicycling slower than 10 miles per hour on level terrain</td>
</tr>
<tr>
<td>• Tennis (doubles)</td>
</tr>
<tr>
<td>• Active forms of yoga (for example, Vinyasa or power yoga)</td>
</tr>
<tr>
<td>• Ballroom or line dancing</td>
</tr>
<tr>
<td>• General yard work and home repair work</td>
</tr>
<tr>
<td>• Exercise classes like water aerobics</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Vigorous-Intensity Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Jogging or running</td>
</tr>
<tr>
<td>• Swimming laps</td>
</tr>
<tr>
<td>• Tennis (singles)</td>
</tr>
<tr>
<td>• Vigorous dancing</td>
</tr>
<tr>
<td>• Bicycling faster than 10 miles per hour</td>
</tr>
<tr>
<td>• Jumping rope</td>
</tr>
<tr>
<td>• Heavy yard work (digging or shoveling, with heart rate increases)</td>
</tr>
<tr>
<td>• Hiking uphill or with a heavy backpack</td>
</tr>
<tr>
<td>• High-intensity interval training (HIIT)</td>
</tr>
<tr>
<td>• Exercise classes like vigorous step aerobics or kickboxing</td>
</tr>
</tbody>
</table>
When using relative intensity, people pay attention to how physical activity affects their heart rate and breathing. As a rule of thumb, a person doing moderate-intensity aerobic activity can talk, but not sing, during the activity. A person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath.

Older or less fit adults may find that activities in Table 4-1 labeled as moderate intensity are experienced as vigorous intensity. These adults will gain health benefits from starting with activities that would be considered light intensity and, as they are able, to gradually build up to moderate- or vigorous-intensity activities. In contrast, younger or more fit adults may experience activities labeled as moderate intensity easy enough that they can sing while doing them. These adults may need to do more vigorous-intensity activities to gain certain health benefits.

### Talk Test

As a rule of thumb, a person doing moderate-intensity aerobic activity can talk, but not sing, during the activity. A person doing vigorous-intensity activity cannot say more than a few words without pausing for a breath.
**Muscle-Strengthening Activity**

Muscle-strengthening activities provide additional benefits not found with aerobic activity. The benefits of muscle-strengthening activity include increased bone strength and muscular fitness. Muscle-strengthening activities can also help maintain muscle mass during weight loss.

Muscle-strengthening activities make muscles do more work than they are accustomed to doing. That is, they overload the muscles. Examples of muscle-strengthening activities include lifting weights, working with resistance bands, doing calisthenics that use body weight for resistance (such as push-ups, pull-ups, and planks), carrying heavy loads, and heavy gardening.

Muscle-strengthening activities count if they involve a moderate or greater level of intensity or effort and work the major muscle groups of the body—the legs, hips, back, chest, abdomen, shoulders, and arms. Muscle-strengthening activities for all the major muscle groups should be done at least 2 days a week. The improvement in, or maintenance of, muscle strength is specific to the muscles used during the activity, so a variety of activities is necessary to achieve balanced muscle strength.

No specific amount of time is recommended for muscle strengthening, but muscle-strengthening exercises should be performed to the point at which it would be difficult to do another repetition. When resistance training is used to enhance muscle strength, one set of 8 to 12 repetitions of each exercise is effective, although 2 or 3 sets may be more effective. Improvements in muscle strength and endurance are progressive over time. Increases in the amount of weight or the days a week of exercising will result in stronger muscles.

**Flexibility Activities**

Flexibility is an important part of physical fitness. Some types of physical activity, such as ballet or salsa dancing, require more flexibility than others. Flexibility activities enhance the ability of a joint to move through the full range of motion. Stretching exercises are effective in increasing flexibility, and thereby can allow people to more easily do activities that require greater flexibility. For these reasons, flexibility activities are an appropriate part of a physical activity program, even though their health benefits are unknown and it is unclear whether they reduce risk of injury. Time spent doing flexibility activities by themselves does not count toward meeting the aerobic or muscle-strengthening key guidelines.
Warm-Up and Cool-Down

Warm-up and cool-down activities are an acceptable part of a person’s physical activity plan. Commonly, the warm-up and cool-down involve doing an activity at a slower speed or lower intensity. A warm-up before moderate- or vigorous-intensity aerobic activity allows a gradual increase in heart rate and breathing at the start of the episode of activity. A cool-down after activity allows a gradual decrease at the end of the episode. Time spent doing warm-up and cool-down may count toward meeting the aerobic key guidelines if the activity is at least moderate intensity (for example, walking briskly as a warm-up before jogging). A warm-up for muscle-strengthening activity commonly involves doing exercises with lighter weight.

Meeting the Key Guidelines

Adults have many options for becoming physically active, increasing their physical activity, and staying active throughout their lives. In all cases, adults should try to move more and sit less each day. In deciding how to meet the key guidelines, adults should think about how much physical activity they are already doing and how physically fit they are. Personal health and fitness goals are also important to consider. Examples of how to meet the key guidelines are provided later in this chapter.

In general, healthy men and women who plan gradual increases in their weekly amounts of physical activity do not need to consult a health care provider before becoming physically active. Women who are pregnant and adults with chronic conditions or disabilities are discussed in Chapter 6, Additional Considerations for Some Adults.

Inactive or Insufficiently Active Adults

Adults who do not yet do the equivalent of 150 minutes of moderate-intensity physical activity a week (inactive or insufficiently active) should work gradually toward this goal. The initial amount of activity should be at a light or moderate intensity, for short periods of time, with the sessions spread throughout the week. People likely gain some health benefits even when they replace sitting time with light-intensity activity. Sitting less and doing moderate- or vigorous-intensity physical activity has even more benefits. The good news is that “some is better than none.” As shown in Figure 2-1, which plots the benefits of increasing physical activity on all-cause mortality, the biggest gain in benefits occurs when going from no physical activity to being active for just 60 minutes a week.

To reduce risk of injury, it is important to increase the amount of physical activity gradually over a period of weeks to months. For example, an inactive person could start with a walking program consisting of 5 minutes of walking several times each day, 5 to 6 days a week. The length of time could then gradually be increased to 10 minutes per session, 3 times a day, and the walking speed could be increased slowly.

Learn More

See Chapter 7, Active and Safe for more information on how to increase physical activity gradually.
Muscle-strengthening activities should also be gradually increased over time. Initially, these activities can be done just 1 day a week starting at a light or moderate level of effort. Over time, the number of days a week can be increased to 2, and then possibly to more than 2. Each week, the intensity can be increased slightly until it becomes moderate or greater.

**Active Adults**

Adults who are already active and meet the minimum key guidelines (the equivalent of 150 minutes of moderate-intensity aerobic activity and 2 days of muscle-strengthening activity every week) can gain additional and more extensive health benefits by reducing sedentary behavior and increasing physical activity above this amount. Most adults should increase their aerobic activity to exceed the minimum level and move toward 300 minutes a week. Adults should also do muscle-strengthening activities on at least 2 days each week.

One time-efficient way to achieve greater fitness and health goals is to substitute vigorous-intensity aerobic activity for some moderate-intensity activity. Using the 2-to-1 rule of thumb, doing 150 minutes of vigorous-intensity aerobic activity a week provides about the same benefits as 300 minutes of moderate-intensity activity.

Adults are encouraged to do a variety of activities to reduce the risk of injury often caused by doing too much of one kind of activity (this is called an overuse injury).

**Highly Active Adults**

Adults who are highly active—doing more than the equivalent of 300 minutes of moderate-intensity physical activity and at least 2 days of muscle-strengthening activity each week—should maintain or continue to increase their activity level. These adults are also encouraged to do a variety of activities.

**Special Considerations**

**Maintaining a Healthy Body Weight**

The health benefits of physical activity are generally independent of body weight. The good news for people needing to lose weight is that regular physical activity provides major health benefits, no matter how their weight changes over time. Physical activity, along with appropriate dietary intake, is an important part of maintaining a healthy weight because it helps in preventing weight gain, losing weight, and keeping extra weight off once it has been lost. Physical activity also helps reduce abdominal fat and preserve muscle during weight loss. Adults should aim for a healthy, stable body weight. The amount of physical activity necessary to achieve this weight varies greatly from person to person.

**Physical Activity and Body Weight: What's the Relationship?**

The health benefits of physical activity are generally independent of body weight. The good news for people needing to lose weight is that regular physical activity provides major health benefits, no matter how their weight changes over time.
The first step in achieving or maintaining a healthy weight is to meet the minimum level of physical activity in the Guidelines. For some people this will result in a stable and healthy body weight, but for many it may not.

People who are at a healthy body weight, but slowly gaining weight, can either gradually increase their level of physical activity (toward the equivalent of 300 minutes a week of moderate-intensity aerobic activity) or reduce caloric intake, or both, until their weight is stable. That is, by regularly checking body weight, people can find the amount of physical activity that works for them.

Many adults will need to do more than the 150 minutes a week of moderate-intensity aerobic physical activity to lose weight or keep it off. These adults should do more physical activity and/or further reduce their caloric intake. Some people will need to do the equivalent of 300 or more minutes of moderate-intensity physical activity a week to meet their body-weight goals. In addition to restricting caloric intake, these adults should gradually increase minutes or the intensity of aerobic physical activity, to the point at which the physical activity is effective in achieving a healthy weight.

It is important to remember that all activities, whether light, moderate, or vigorous intensity, “count” for energy balance. Active choices, such as taking the stairs rather than the elevator or adding short episodes of walking to the day, are examples of activities that can be helpful in weight control.

Getting and Staying Active: Real-Life Examples

Adults can meet the key guidelines in all sorts of ways and with many types of physical activity. The choices of types and amounts of physical activity depend upon personal health and fitness goals. Here are a few examples:

**Madison: A 20-Year-Old Woman**

Madison is an active 20-year-old who lives on campus at a small university. At the end of her first year, she realized she had become quite sedentary and had gained weight. She found that physical activity helped her feel less anxious and study more productively, so she made the commitment to build regular physical activity into her week. Now at the end of her second year, Madison does the equivalent of at least 420 minutes of moderate-intensity aerobic activity each week, plus muscle-strengthening activities 2 days a week. Below is a sample week of her activities:

- Madison walks briskly to class, the gym, the dining hall, and friends’ dorms instead of taking the campus shuttle. Walking provides at least 30 minutes of moderate-intensity activity each day (150 minutes a week).
She attends a cardio exercise class at the university’s fitness facility twice a week. The 45-minute class is mostly vigorous-intensity activity (equivalent of 180 minutes of moderate-intensity activity a week) and incorporates dance, calisthenics (e.g., jumping jacks, running in place), and step aerobics.

Madison meets a friend twice a week to lift weights at the university’s gym. They use dumbbells, weight machines, suspension trainers, and kettlebells to target all of their major muscle groups.

As part of the Outdoor Adventure Club at school, Madison goes kayaking for 90 minutes at the nearby river on the weekend.

**Miguel: A 40-Year-Old Man With Young Children**

Between a demanding job, caring for his two children ages 5 and 7, and spending time with his wife and extended family, Miguel does not have much time to spare. But physical activity helps Miguel deal with the stress of his hectic life, and he squeezes it in wherever he can. Adding it up, he does the equivalent of 95 minutes a week of moderate-intensity physical activity and 1 day of muscle-strengthening activity each week. Miguel has downloaded a few HIIT workouts on his phone and squeezes in two 20-minute sessions a week (40 minutes of vigorous intensity, the equivalent of 80 minutes of moderate-intensity activity a week), often before his kids wake up or after they go to bed. On Saturdays he and his wife stroll to the park with their children. The leisurely walk counts as light-intensity activity, but Miguel typically spends at least 15 minutes running around and playing with the kids each time they visit the park. While at the park, Miguel and his wife take turns doing body-weight exercises like squats, push-ups, and crunches while the other parent keeps an eye on the kids. Miguel knows he has not quite met the key guidelines, so he plans to add another park outing each week this summer. He also talked to a coworker about increasing activity at work. He plans to start walking briskly up or down the stairs in his office rather than taking the elevator to attend various meetings to accumulate at least 10 minutes of moderate-to-vigorous physical activity each day. Once he makes these changes, he will be getting the equivalent of 160 minutes of moderate-intensity activity and 2 days of muscle-strengthening activity each week.