PEDOMETER AND WALKING ACTIVITIES

Unit Overview

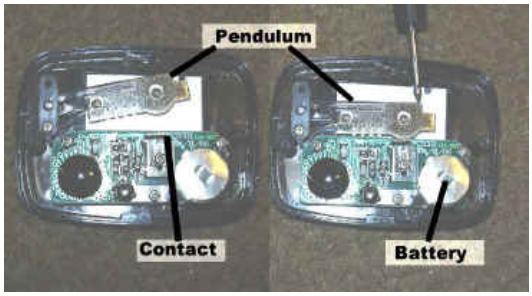
In this unit, you will be learning about pedometers and walking programs. You might already be using a pedometer for your weekly physical activity that you keep on your exercise chart. You may be participating in a walking program without using a pedometer, and that's great! You will be doing some predictions using a pedometer, so you will need to purchase one. There are many different kinds of pedometers at different prices. Most are very modestly priced.

What is a pedometer?

A pedometer is a small device worn on your hip, and it counts the number of steps that you take**.** Pedometers don't truly measure the distance you walk; they simply count the number of steps you take and do a simple multiplication based on the average length of your stride. For this reason, they're not exceptionally accurate. If your stride length varies, which is more likely if you're running or navigating uneven terrain, a pedometer may have a margin of error greater than 10%. Still, the measurements pedometers provide are accurate enough for most people, and those who need to measure distances on foot with greater accuracy can always use a GPS receiver. A **GPS receiver** or **Global Positioning System** is a system of satellites and receiving devices used to compute positions on the Earth. GPS is used in navigation, and its precision supports cadastral surveying.

A modern digital pedometer can not only count the number of steps, miles, or kilometers you have walked, but it can also count how many calories you have burned. Most digital pedometer cost less than ten dollars. That's amazing!!

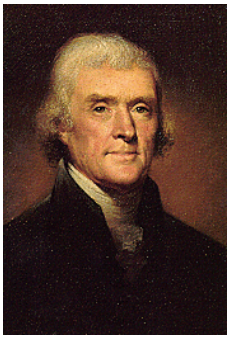
How does a pedometer work?



There is a bouncing mechanism in a pedometer that jiggles each time you take a step, thus causing a ratchet to move (in mechanical models) or incrementing a counter (in electronic ones). Although designs may vary, some pedometers have a horizontal arm with a hinge on one end and a magnet on the other. The arm is weighted (to give it some inertia) and held in place with a tiny spring that's just strong enough to keep the arm centered when it's not in motion. Move the pedometer up or down and the arm bounces the opposite direction. When it does, the magnet swings by a tiny reed switch. The magnet briefly pulls one of the two slender pieces of metal in the switch out of contact with the other, breaking the circuit, and these breaks are what the counter counts.

Who invented the pedometer?

They say Thomas Jefferson, the third president of the United States, invented the pedometer.



Thomas Jefferson was born in 1743 and served as the third president of the United States from 1801 to 1809. Thomas Jefferson also invented *macaroni and cheese*.

But that's not all Jefferson invented. He is also responsible for the swivel chair, an improved version of the dumbwaiter, the hideaway bed, and even the machine used to make macaroni. For all his innovations, he never applied for a patent, believing that his inventions should benefit all of society and not just the inventor. But few people realize Jefferson also invented the pedometer, the little gadget you wear on your belt to tell you how far you walked today.

Where should I wear my pedometer?

The best place to wear your pedometer is on your waist aligned directly over the knee.

Will a pedometer work for biking, running or other activities?

While it depends on the model that you are wearing, most pedometers are accurate for walking but lose effectiveness for more intense activities. Running and other high impact exercises will reduce the mileage and caloric functions because your stride varies as you run. In most cases pedometers will be ineffective for biking, because there is no way to register the impact from your foot to the pedometer.

How can I tell how accurate my pedometer is?

You can go to a local high school track, reset your pedometer, and walk one lap. Write down the number of steps you walked. If the track is a ¼ mile track, then multiply the number by four. This is approximately how many steps it takes **you** to walk a mile. If you are walking on a 400 meter track, you will have to mark down the number of steps after you have walked one lap plus 2.25 meters, and then multiply by four. Refer to the conversion chart below.

Conversion to Miles	
On a 400 meter track	**On a 440 yard track**
1 mile = 4 laps + 9 meters	1 mile = 4 laps
3/4 mile = 3 laps + 6.75 meters	3/4 mile = 3 laps
1/2 mile = 2 laps + 4.5 meters	1/2 mile = 2 laps
1/4 mile = 1 lap + 2.25 meters	1/4 mile = 1 lap

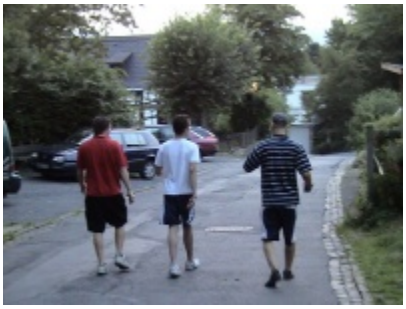
On average, a moderately active person will walk between 5,000 to 7,000 steps in a day, which is about the same as walking three miles. One mile is about 2,000 to 2,500 steps. If you are just starting out using a pedometer walking program, you will want to determine your average steps per day for one week. Then increase your steps by 500 per day each week until you reach your goal.

Recommended Goals

Recommended Goals for Steps

Girls 6 to 17	At least 11,000 steps a day
Boys 6 to 17	At least 13,000 steps a day
Adults 18 or older	At least 8,500 steps a day

How to Start Walking for Exercise

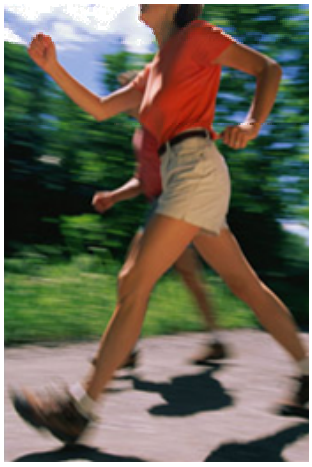


Walking is great exercise that can be accomplished by almost anyone.

1. **Set your expectations reasonably.**	If you have been sedentary for a long period of time, (i.e. your idea of walking is from your couch to your refrigerator and back) you will want to start out slow and go only a short distance.
2. Find a good place to walk.	Many times you can just walk around your block. But what do you do if the terrain is too steep, curvy, or just isn't what you are looking for? There are some easy solutions. You can go to your nearest high school; most schools allow town residents to walk the track when it is not being used. Take your car to a park if it's too far away to walk; parks are usually flat and very peaceful.

3. Pick an easy first walk.	Make sure that no matter how far you get from your starting point, you are able to get back there. Walking on an oval track no more than a quarter mile around should be perfect.
4. At first, pay no attention to how far you walk.	It matters more that you walk for a longer period of time. Faster and farther walks will come later.
5. Set a time.	When you first start walking, decide how many minutes you will walk. Choose a length of time you know you can make. Do not worry about how short that period is. Just keep moving until you reach it. Aiming for 2-5 minutes each day is a good start. That time will increase from week to week.
6. Increase your time.	With each walk, increase your walking time by thirty seconds to one minute until you are able to sustain a 10 minute walk. Again, do not fret if you can't go longer than the day before. Set the goal and keep at it, and you will reach it faster than you think. After reaching 10 minutes, the increases may take a bit longer; however, try to increase your time by 5 minutes each week.
7. Work on speed and difficulty.	After you are able to walk 45 minutes a day, you can work on speed and difficulty. Try moving off of the oval and onto the city streets. You will encounter hills and declines, and that will increase the difficulty of your walk.
8. Try interval training.	Walk at an increased rate for one to two minutes. Then slow back to your normal rate for two minutes. Every day or two add an interval until you reach your desired total time, including rest periods. As you become more physically fit, reduce your rest periods until they are down to a minute or less.

Tips



- Bend your knees to find balance.
- Buy a pedometer to count how many steps you have walked each day. Write down the number of steps you have taken every night, and try to "beat" that number the next day.
- Swing your arms as you walk.
- Make sure you stretch for ten minutes before you start to walk and do some type of cool down after your walk is over.
- Walk with a good posture. Stand completely straight, put your shoulders back, take long strides, and keep your head up.
- Try to walk no less than three times per week.
- On some walks, try interval training by walking much faster for 30 to 60 seconds, then going back to your normal speed.
- Try using an iPod or other MP3 player to add entertainment to the walk. Books on tape make the walk go by faster and you may want to walk longer. But make sure the volume is low enough that you can also hear whats going on around you.
- Find a friend or family member to walk with. It makes the time go faster and you'll have more fun. It's also much safer to walk with other people than to walk alone
- Walking may cause cramps. If a cramp occurs, place your hands on your head and begin breathing through your nose and out your mouth at a slow steady rate. Be sure to bring a water bottle with you.
- Make sure you walk in a safe area!!!!!!!!!!

Warnings

- Before undertaking this or any other exercise program, be sure to check with your doctor, especially if you haven't been physically active in more than 6 months.
- Be prepared for your walk. Take water with you. Also take along a whistle in case you get into trouble with dogs or unsavory people. Carrying a cell phone is also a good idea.
- If you are walking and become short of breath, slow down or stop. Ask for help if you need it.
- ***Don't*** carry weights with you as you walk. This extra weight throws your gait out of balance.

- Be sure to wear proper footwear. Sandals, flip-flops, and even fashion athletics do not support the various muscles, tendons, and joints in your foot and can, therefore, cause strain and injury.

Things You Will Need

When you are walking, you will need:

- water to drink during walks of ten minutes or more whether you feel thirsty or not. (Yes, this applies to cold weather *and* warm weather.)
- good, comfortable walking shoes or sneakers and thick socks. If you have thin socks you may get blisters.
- a cell phone for emergencies.
- a whistle to call for help should you run into trouble of the criminal type.
- a hat and sunblock on sunny days.

Making Predictions with Your Pedometer

A **prediction** is a statement foretelling the possible outcome(s) of an event, process, or experiment. In meteorology, a prediction is also called a forecast. A prediction is based on observations, experience, and scientific reasoning. A guess, on the other hand, is based on conjecture (speculation), chance, and intuition. In the questions section, you will be asked to make some predictions involving your pedometer.