

# Diabetes & Exercise





# What Can Exercise Do For Me?

Exercise and physical activity includes anything that gets you moving, such as walking, dancing, or doing yard work. When you're active on a regular basis, you feel better physically and mentally. Exercise strengthens your muscles, decreases stress, and improves weight loss. Exercise also has specific benefits for people with diabetes:

## 10 Reasons for People with Diabetes to Exercise Regularly

- Improve blood glucose management. Exercise improves the way your body uses insulin, and it can also help lower blood sugar levels.
- Lower blood pressure. Activity helps your heart pump stronger and slower.
- Improve blood fats. Exercise can raise good cholesterol (*HDL*) and lower bad cholesterol (*LDL*) and triglycerides. These changes are heart healthy.
- Take less insulin or diabetes pills. Activity can lower blood glucose and weight. Both of these may lower how much insulin or diabetes pills you need to take.
- Lose weight and keep it off. Activity burns calories. If you burn enough calories, you'll trim a few pounds. Stay active and you'll keep the weight off.
- Lower risk for other health problems. Reduce your risk of a heart attack or stroke, some cancers, and bone loss.
- Gain more energy and sleep better. You'll get better sleep in less time and have more energy, too.
- Relieve stress. Work out or walk off daily stress.
- Build stronger bones and muscles. Weight-bearing activities, such as walking, make bones stronger. Strength-training activities, such as lifting light weights (*or even cans of beans*), make muscles strong.
- Be more flexible and improve your balance to reduce risk of injury.

Before you begin an exercise program, talk with your doctor about the best times of day to exercise, specific exercise recommendations and when to check your blood sugar. Begin slowly and gradually increase exercise as you become more fit.

### Hips, Thighs & Ankles Stretch

Kneel and sit on your feet with your toes pointing out. Lean over and rest your forehead on the ground. Either bring your arms forward in front of your head, or place your hands at your hips with your palms facing up. Relax and breathe deeply, holding the stretch for 15-30 seconds.



### Hamstrings & Calves Stretch

Sit on the floor with your legs straight out in front of you. Slowly lean forward over your knees, reaching toward your toes. Relax and breathe deeply. Hold the stretch for 15-30 seconds.



# Types of Exercise

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There are three types of exercise:

- aerobic
- strength training
- flexibility

A comprehensive physical activity plan will include all three types of exercise. In addition to planned exercise, increase your daily activity by gardening, cleaning house, parking further away from the store or work, or using the stairs.

## Aerobic exercise

Aerobic exercise increases your heart rate and breathing rate, and it also strengthens your muscles. Aim for 30 minutes of aerobic exercise most days of the week. If you want to lose weight, gradually increase the time you spend exercising to 60 minutes most days. Some examples of aerobic exercise include:

- brisk walking outside or on a treadmill
- dancing
- aerobics or water fitness classes
- sports such as tennis, basketball, or badminton
- indoor exercise on a stationary bike or elliptical trainer

## Strength training

Strength training helps build strong bones and muscles. When you're stronger, every day activities such as carrying groceries or going up and down the stairs become easier. Aim for 8-10 different strength-training exercises, and do 10-12 repetitions of each twice each week. Some examples of strength training include:

- a class with weights or elastic bands
- lifting light weights at home
- Bone Builders classes

## Flexibility exercises

Flexibility exercises, or stretching, helps keep your joints flexible and reduces chance of injury. Stretch for 10 minutes after you've finished aerobic exercise or strength training for the best results.

## Guidelines for success

Do exercise in short bursts. For example, a 10 minute walk after breakfast, 15 minutes strength training, and 15 minutes on the treadmill add up to 40 minutes of total exercise for the day.

Mix it up. Use a variety of different types of exercise to avoid becoming bored.

Plan ahead for time to exercise, and write it in your daily calendar. Make exercise a part of every day for the best results.

Make it fun! Walk with a friend, toss a ball with your grandchildren, or ride your bike with your spouse.

# When Should I Slow Down or Stop Exercising?

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You may feel some minor soreness in your joints or muscles when you first begin an exercise program. That's normal and is not a problem. However, if you experience any of the following symptoms, it's a good idea to stop exercising and contact your physician immediately:

- chest or upper abdominal pain that may spread to the neck, face or arms
- panting or shortness of breath
- nausea
- persistent pain, joint discomfort, or muscle cramps that don't go away
- feeling light-headed or dizzy

## **Do not exercise in these conditions:**

- you're not feeling well
- it is very hot or very cold outside (it's OK to exercise indoors!)
- if you take insulin and have ketones in your urine
- if you take insulin and have pre-exercise blood sugar less than 100 mg/dL

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## Wear the Right Socks for Safe and Comfortable Exercise

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Start with socks designed for walking or running. Look for cushioned socks from reliable brands like Thorlo and Smartwool, which are well-padded in areas with the most impact and friction.

Look for synthetic blend socks. Synthetic fibers such as acrylic, nylon, Lycra, Coolmax and polyester wick moisture away to prevent blisters.

Avoid cotton socks, which hold in moisture and can cause blisters.

Wool socks also keep your feet dry, and are great for winter weather to keep your feet warm.

Socks should fit like a glove. Loose fabric around the toes or bunching can cause friction that leads to blisters or even sores and infections.

Socks that are too tight, especially around the ankle or mid-calf, can cause circulation problems. Make sure your socks are loose and don't leave a mark on your legs.

Wear comfortable walking socks when you shoe shop. The right socks can expand your shoe size by up to a half size, so wearing them ensures the best possible fit.

Time your shoe-buying trip right. Fluid in the feet tends to build over the course of the day, so it makes sense to shoe shop in the late afternoon or evening, in order to get a sense of your feet at their biggest size.

Fit the larger foot. Most people have natural asymmetry in their feet, with up to as much as a full size difference between left and right. It's essential to fit sneakers to the bigger foot and then tie the laces tighter or use an insole for the smaller one.

# How to Start a Walking Program

Walking is a great way to improve circulation, promote weight loss, reduce stress, and lower blood glucose levels. If you're not used to being active, use these guidelines to start a walking program:

Start with 10 minutes moderate walking each day.

Keep a good posture with your chin level to the ground and head up.

Wear shoes designed for walking.

A walk through the mall or around the grocery store "counts" as activity.

After one week of walking every day for 10 minutes, add 3-5 minutes the next week.

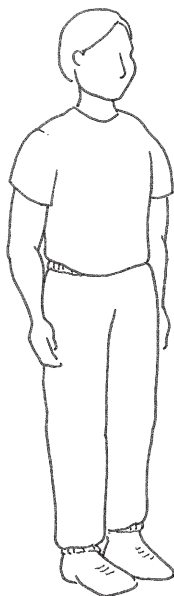
- **Week 1** 10 minutes walking every day
- **Week 2** 13-15 minutes walking every day
- **Week 3** 16-20 minutes walking every day
- **Week 4** 19-25 minutes walking every day
- **Week 5** 22-30 minutes walking every day

After you can consistently walk for 30 minutes, you can continue to gradually increase each week until you walk for 45 minutes total. Walking every day is best, but at the minimum walk 5 times per week.

Make sure to stay hydrated by drinking 8-12 ounces of water before you begin your walk. Drink another 8-12 ounces of water after your walk.

Let a friend or family member know when you're going for a walk and which route you plan to walk.

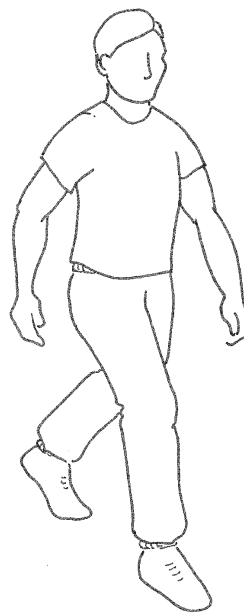
Finish each walk with 5 minutes of gentle stretching



## Stand Tall

Pull the top of your head toward the sky. Aim for no slouch in your shoulders, forward lean from the waist, or excess sway in your back.

Keep your eyes on the horizon; don't let your chin drop.



## Stride – Quick, Not Long

Yes, your stride gets longer as you walk faster. But that shouldn't be your goal. Let it happen naturally. Instead, concentrate on taking faster steps.

Count how many steps you take in 20 seconds: 40 for health benefits; 45 for weight loss; 50 to build aerobic fitness.

## TIPS...

Stand up tall and straight. Look straight ahead, not down at the ground in front of you.

Concentrate on taking shorter, faster steps. Count the number of steps you take in 20 seconds: 40 for health benefits, 45 for weight loss, and 50 to increase aerobic fitness.

Bend your arms at the elbow and let your hands swing freely. Keep your fingers loose and don't make a fist.

Push off of your toes with each step to generate boost.

# How Do I Use a Pedometer to Supplement My Walking Program?

Start by wearing the pedometer for one week without changing your usual activity pattern. If you're routinely active, continue doing your usual activity. If you're not currently physically active, just continue your usual routine without adding any activity or walking. Write down your total number of steps for the day each evening before you go to bed. Reset your pedometer to zero to start the next day.

Use this step index to classify your usual daily activity level:

<u>Steps per day</u>	<u>Activity level</u>
<5,000	sedentary
5,000 – 7,499	low active
7,500 – 9,999	somewhat active
10,000 – 12,500	active
>12,500	highly active

After one week of keeping track of your steps, pick the highest number of steps you walked that you are comfortable with. Make this your daily step goal for the next week.

For most healthy adults, 10,000 steps per day is a reasonable goal. If you currently walk fewer than 10,000 steps per day, gradually increase your fitness level by walking an additional 250-500 steps per day for the next week. For example, if you are currently walking 2,000 steps per day, set a goal to walk 2250-2500 steps per day each day for the next week. At the end of each week, evaluate your progress and decide if you're ready to add another 250-500 steps.

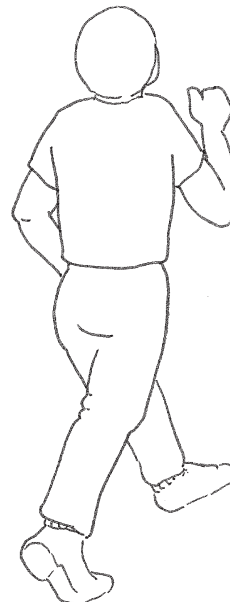
There are approximately 2000 steps per mile. If you walk 10,000 steps in one day, you've walked 5 miles!

Every step counts! Look for creative ways to increase your steps by taking the stairs instead of the elevator, parking further away when shopping or at work, or taking a 5 minute walk break every couple of hours.



## **Bend Your Arms**

Hold your elbows at a right angle so your arms can swing more quickly; target a quick, compact arm swing. Your hands should trace an arc from alongside your waistband on the back swing, and to chest height (*but no higher*) in the front.



## **Push Off With Your Toes**

Consciously push off of your toes and generate as much boost as possible at the end of each step.

Feel like you're showing someone behind you the bottom of your shoe on each stride.

# Strength Training for People with Diabetes

Strength training has these benefits:

- strengthens bones and increases bone density
- reduces risk of injury
- helps maintain balance and flexibility
- tones and strengthens muscles
- improves insulin sensitivity

## Getting started with strength training

Once you have your doctor's permission to begin a strength training program, start slowly. Warm up with 5-10 minutes of walking. Then do 10-12 repetitions of 8-10 different exercises. You can use your body weight for exercises like sit-ups or leg squats, or you can use free weights or weight machines. By the 12th repetition you should barely be able to finish the motion. When you can do 15 repetitions of an exercise, it's time to gradually increase the weight or resistance.

Do strength training exercises 2-3 times per week, with one day in-between to allow your muscles to rest and recover.

## Strength training options

Use your own body weight. Try push-ups, sit-ups, leg squats, and lunges.

Try resistance tubing that is available in most sports stores.

Use free weights such as barbells or dumbbells. Or you can fill empty plastic milk containers with water or sand and make your own weights.

Join a gym and use their weight machines.

## Strength training do's and don'ts

**Do:**

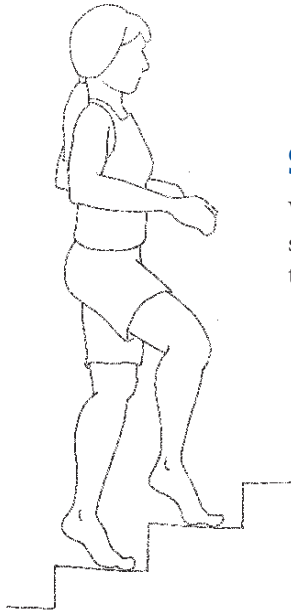
- Check with your doctor before beginning or changing your exercise program.
- Use a weight you can comfortably lift 10-12 times. As you get stronger, gradually increase the amount of weight or resistance.
- Learn to do the exercises correctly to avoid injury. Ask a personal trainer or fitness expert for help.
- Breathe! Breathe out as you lift a weight, and breathe in as you lower the weight.
- Work all of the major muscle groups in your body: abdominals, back, chest, legs, shoulders, and arms.
- Strength train 2-3 times per week, making sure you have 1-2 rest days in between each strength training session.
- Wear supportive shoes to keep from slipping.

**Don't:**

- Skip the warm-up. Warm up with 10 minutes of walking to avoid injury.
- Lift too much weight. Use a weight you can comfortably lift 10-12 times.
- Rush. Lift weights in a slow and controlled manner to isolate the muscles you want to strengthen.

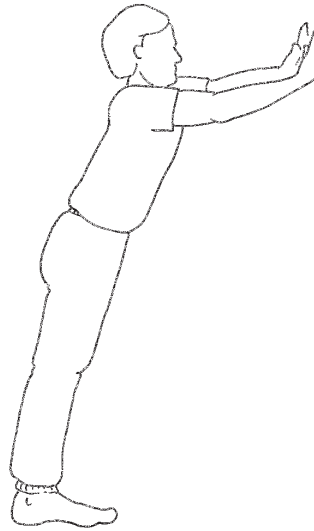
# Strength Exercises

Daily exercise and not smoking can help prevent problems in your legs and feet. In addition to walking, do these exercises every day.



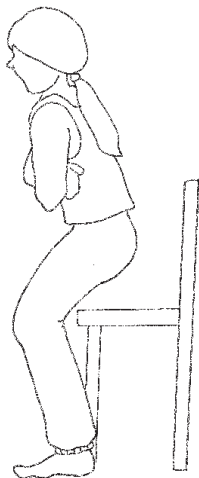
## Staircase Exercise

Walk briskly up a flight of stairs using only the balls of the feet.



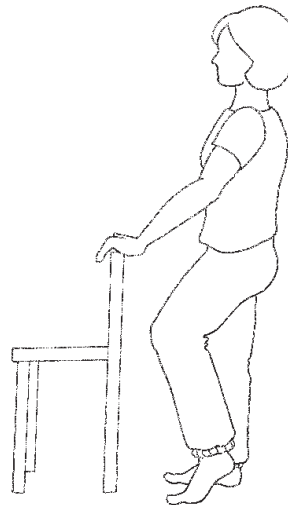
## Wall Push-up

Lean with the palms of your hands against a wall. Keep your feet some distance away, the heels firmly on the floor. Bend your elbows 10 times, bringing your nose toward the wall keeping your back and legs straight.



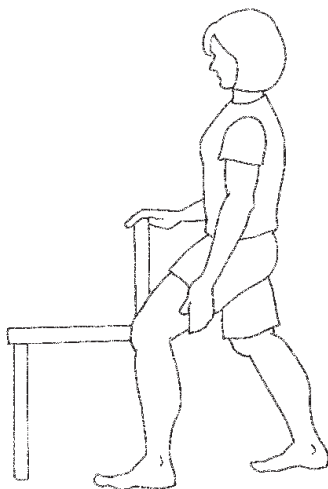
## Chair Exercise

Sit down on a chair and raise yourself up 10 times keeping your arms crossed.



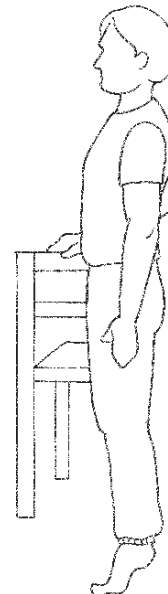
## Tiptoe Exercise

Hold onto a chair and raise and lower yourself on the toes of one foot, then the other.



## Leg Bends

Hold chair. Put one foot forward and lower body straight down, keeping both feet on floor. Your back knee should point down toward the floor. Raise and lower 10 times. Change legs.



## Heel Raising

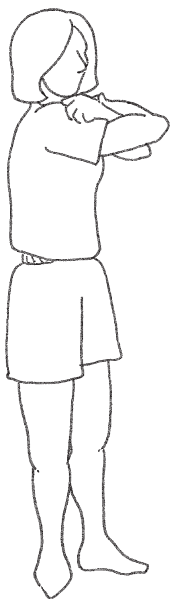
Get up on your toes and then down on your heels, about 20 times. Then try putting your whole weight first on one leg and then the other.

# Stretching for Flexibility and Fitness

The American College of Sports Medicine recommends stretching your major muscle groups at least two to three times per week. Daily stretching will help your muscles stay limber and improve your ability to move and exercise.

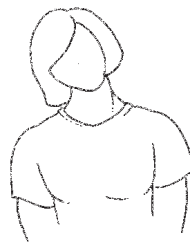
## Tips for stretching:

- Stretch after other exercise such as walking or swimming to get your blood moving.
- Breathe deeply while stretching and avoid holding your breath.
- Stretch to where you feel tension in your muscles, but no pain. Relax your body while you stretch.
- Hold each stretch for 15-30 seconds. Do not bounce when you stretch because that tears the muscle fibers.
- Include these stretches in your daily exercise routine. Do 3 repetitions of each stretching exercise.



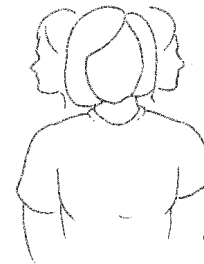
### Lower Back Stomach & Sides

Stand upright, cross your arms, and place your hands on your shoulders. Slowly rotate by turning from one side to the other.



### Neck Stretch

Gently lower your right ear toward your right shoulder. Repeat on the left side.



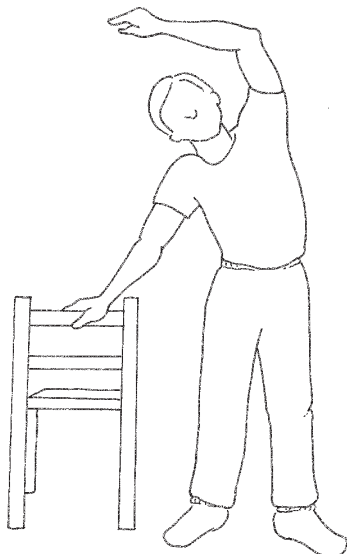
### Neck Stretch 2

Gently turn your head to the right and try to look over your shoulder. Keep your shoulders and hips facing forward. Repeat on the left side.



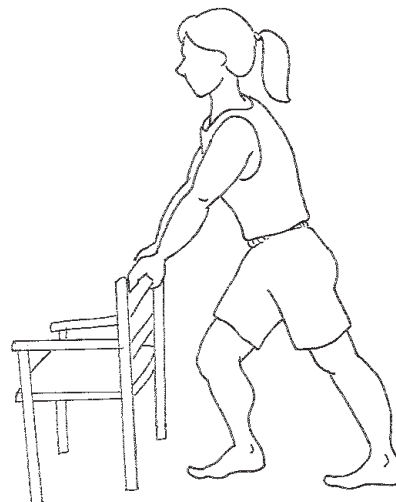
### Shoulders

Keep your arms relaxed and hanging by your sides. Gently roll your shoulders forward 10 times; repeat rolling your shoulders backwards 10 times.



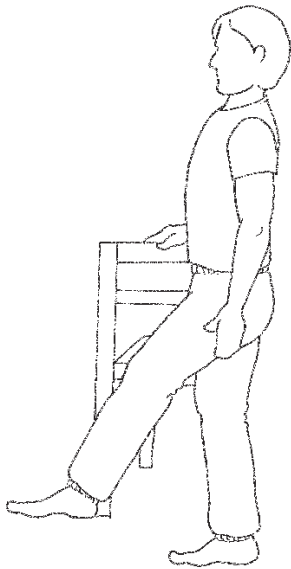
### Side Stretch

Hold onto the back of a chair. Stand with your feet shoulder width apart. Bring your arm up and over head, slowly bending to the side. Repeat on both sides.



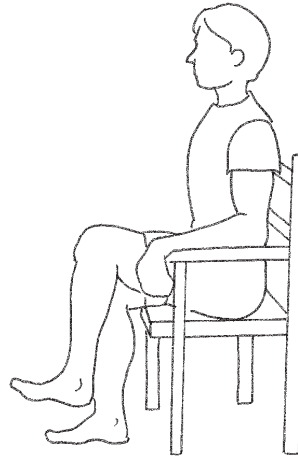
### Calf Stretch

Face the back of the chair and point toes straight ahead. Stretch your left leg behind you, keeping right leg slightly bent. Press left heel to the floor (*you should feel the stretch in your calf muscle*). If you cannot get your heel down, move your left leg forward a little and hold for 5 counts.



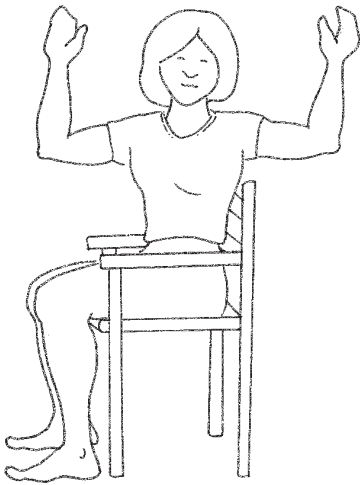
### **Leg Sweeps**

Stand with one leg slightly raised. While holding onto a chair or table, swing the other leg back and forth 10 times. Change to the other leg and repeat.



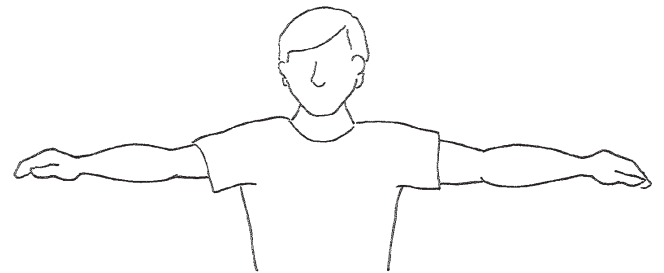
### **Knee Lift**

Raise your right knee to your chest or as far upward as possible. Do not pull up or push down with your hands. Return to starting position and repeat five times. Switch knees and repeat.



### **Spine Twists**

Sit or stand with your back straight, head high. Raise your arms out to your sides at shoulder level. Bend your elbows upright, palms facing forward. Keep hips and knees facing forward. Slowly twist your upper body to the right and hold for 5 counts. Return to center, then twist to the left and hold for 5 counts. Repeat 5 times.



### **Arm Circles**

Raise your arms at sides to shoulder level. Keep elbows straight. Rotate your arms from the shoulder in small circles. Do 10 circles forward and 10 backward.

# Diabetes and Exercise: When to Monitor Your Blood Sugar

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Checking your blood sugar before, during, or after exercise will help you find out how your body responds to activity and exercise. Checking your blood sugar will also help you prevent low blood levels, or hypoglycemia. If you take insulin or medications that can cause hypoglycemia (*low blood sugar*) checking your blood sugar level is crucial.

Ask your doctor the best times to check blood sugar, and make sure to get his/her OK to begin an exercise program.

Check your blood sugar 30 minutes before you begin to exercise. Use these general guidelines:

- If your blood sugar is lower than 100 mg/dL, eat a small snack before starting to exercise. A piece of fruit, 1 cup of yogurt, or one serving of crackers will help keep your blood sugar from falling too low.
- If your blood sugar is between 100 and 250 mg/dL, you're ready to exercise!
- If your blood sugar is over 300 mg/dL, it's not safe to exercise.
- Drink Water. If you have Type 1 Diabetes, check for ketones.

During exercise, watch for symptoms of low blood sugar. If you're planning a long workout, check your blood sugar every 30 minutes. This is especially important if you're trying a new activity. If your blood sugar is 70 mg/dL or lower, or you feel shaky or weak, stop exercising and eat or drink something with carbohydrate to raise your blood sugar levels. Try:

- 3 glucose tablets
- ½ cup of fruit juice (*a small juice box*)
- ½ cup of regular (*not diet*) soda
- 5-6 pieces of hard candy
- Recheck your blood sugar after 15 minutes. If it's still too low, eat or drink another carbohydrate serving and retest in 15 minutes. Some people may find their blood sugar goes up right after exercise. But Exercise lowers your blood sugar levels even hours after you finish exercise, especially if you're doing something strenuous.

**Check your blood sugar after you finish exercising**

# Exercise Resources in the Rutland Area

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## **Get Moving Vermont**

*Track your physical activity and win prizes!*

Vermont Department of Health, Office of Health Improvement

[www.getmoving.vermont.gov](http://www.getmoving.vermont.gov)

## **Walk Rutland**

*Dedicated to establishing walking programs in every town in Rutland county*

[www.walkrutland.com/](http://www.walkrutland.com/)

## **Diamond Run Mall Walking**

Doors open for walkers at 7am. You will need to fill out an application initially which you can get at the Mall office as well as provide ID. Each time you walk you will need to sign into the log located near

Gene's Beans Coffee Exchange for your convenience

802.773.1145

## **RSVP Bone Builders**

*A free exercise program to strengthen bones and improve balance.*

Rutland County call 802.775.8220 or email [rsvp@volunteersinvt.org](mailto:rsvp@volunteersinvt.org)

Addison County call 802.388.7044 or email [rsvpaddison@volunteersinvt.org](mailto:rsvpaddison@volunteersinvt.org)

Bennington, Windham and Windsor counties call 802.447.1545 or email [pseares@gmcarc.org](mailto:pseares@gmcarc.org)

## **VAC Swimming/Aqua Aerobics**

Office open 7:45am-4:30pm; closed 11:45am-1pm for lunch, after 4:30, call 802.773.7187 to reach the pool directly

88 Park Street, Rutland, VT 05701

802.775.2395 • [www.vacvt.org](http://www.vacvt.org)

## **Rutland Recreation Department**

802.773.1822 • [www.rutlandrec.com](http://www.rutlandrec.com)

## **Godnick Adult Center**

1 Deer Street, Rutland, VT 05701

802.773.1853

## **Castleton Community Center**

*A variety of fitness and activity programs for all ages*

2108 Main Street, Castleton, VT 05735

802.468.3093 • [www.bsi-vt.com/castleton/commctr](http://www.bsi-vt.com/castleton/commctr)

## **Healthier Living Workshops**

*Free, 6-week workshops to learn how to manage health issues and take charge of chronic illness*

Call 802.772.2400 for more information

# Overcoming barriers to physical activity

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Some people have a difficult time starting, or maintaining, an exercise and activity program. Perhaps you've never been very active. Maybe you're afraid you'll have a low blood sugar level during exercise. Or maybe you're embarrassed to join a gym or exercise class.

Think about what's keeping you from being active, and then find ways to overcome these barriers.

**Barrier:** I don't have time to exercise.

**Solution:** Even 5-10 minutes of exercise counts toward your daily total. Fit in exercise whenever you can: 10 minutes before work, 10 minutes at lunch, 10 minutes in the evening.

**Barrier:** I'm too tired after work to exercise.

**Solution:** Exercise before work, or during your lunch break. Or invite a friend to walk with you after work or after supper, and you'll have so much fun you won't realize you're exercising!

**Barrier:** I don't have the right clothes for exercise.

**Solution:** Wear comfortable, loose clothing. Make sure you have support shoes and socks that fit well.

**Barrier:** I'm too shy to exercise in a group.

**Solution:** Do something on your own, such as using an exercise DVD at home or go for a walk.

**Barrier:** I'm afraid my muscles will be too sore.

**Solution:** Start slowly, warm up first with some gentle activity, and stretch after exercise.

**Barrier:** I'm afraid I'll have low blood glucose during exercise.

**Solution:** Talk with your health care provider about ways to exercise safely.

**Barrier:** Walking hurts my knees.

**Solution:** Try chair exercises or exercise in a pool.

**Barrier:** It's too hot/cold/rainy outside.

**Solution:** Walk inside a school, grocery store, or mall. Join a local gym where you can exercise no matter what type of weather.

**Barrier:** It's not safe to walk where I live.

**Solution:** Walk from work, or after you drop your kids off at school. Or find an indoor exercise class or facility.

**Barrier:** I can't afford to join a fitness center or exercise class.

**Solution:** Walk outside or in the mall, do exercises at home along with a DVD, or look into free exercise classes in your area.

**Barrier:** Exercise is boring.

**Solution:** Find an activity you enjoy, such as gardening, dancing, or tai chi. Exercise with others to make the activity fun.

# My Physical Activity Check List

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You're never too old or out of shape to begin an exercise program! If you want to become more active, follow these steps:

- Talk to your doctor and find out which activities are safe for you
- Think about what type of activity you'd like to do. Include ideas for aerobic exercise such as walking, dancing, or water aerobics; strength training; and stretching and balance exercise.
- Develop a plan for when and how long you plan to be active. If you don't have time to walk for 30 minutes, walk for 10 minutes.
- Start slowly and gradually increase your activity over a few weeks.
- Plan how to have water, snacks, and treatment for low blood sugar levels available while exercising.
- Make sure you wear medical identification whenever you exercise.

My plan to increase activity:

Reasons why I want to be more physically active:

What I'll do for physical activity:

Which days and times I plan on being active:

My activity sessions will last how many minutes:

What I need to do to get ready for physical activity:



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