

# Prediabetes

*Reducing Type 2 Diabetes Risk Through  
a Lifestyle of Good Nutrition and Activity*



Allina Health



# Prediabetes

## *Reducing Type 2 Diabetes Risk Through a Lifestyle of Good Nutrition and Activity*

*Third edition*

Developed by Allina Health.

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This publication is for general information only and is not intended to provide specific advice or recommendations for any individual. The information it contains cannot be used to diagnose medical conditions or prescribe treatment. The information provided is designed to support, not replace, the relationship that exists between a patient and his/her existing physician.

For specific information about your health condition, please contact your health care provider.





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## Are You At Risk for Type 2 Diabetes?

Place a check in the box of each statement that you can answer “yes” to. The more items you check, the higher your risk for developing diabetes.

<input type="checkbox"/>	I have a parent, brother or sister who has diabetes.
<input type="checkbox"/>	My family background is: American Indian, Asian American, black, Latino or Pacific Islander.
<input type="checkbox"/>	I had diabetes when I was pregnant <b>or</b> I have given birth to at least one baby who weighed 9 pounds or more.
<input type="checkbox"/>	My blood pressure is 140/90 mm Hg or higher <b>or</b> my triglyceride level is 150 or higher.
<input type="checkbox"/>	My cholesterol (lipid) levels are not normal. My HDL (“good” cholesterol) is less than 40 <b>or</b> my triglyceride level is 150 or higher.
<input type="checkbox"/>	I am fairly inactive.
<input type="checkbox"/>	I’m physically active fewer than 3 times a week.
<input type="checkbox"/>	I am younger than 65 years old <b>and</b> I get little or no physical activity during a typical day.
<input type="checkbox"/>	I am older than 65 years old.
<input type="checkbox"/>	I am overweight.
<input type="checkbox"/>	My waist is more than: 35 inches for women or 40 inches for men.

# Prediabetes

## Terms to Know

**Glucose:** When food is digested, it turns to sugar, called glucose. Body cells use glucose for fuel, giving you the energy you need.

**Insulin:** A hormone made by the pancreas that helps glucose move into body cells.

Prediabetes means that your blood glucose (sugar) levels are higher than normal but not high enough to be considered diabetes. Having prediabetes puts you at high risk for developing diabetes.

Most people with prediabetes and type 2 diabetes have insulin resistance. (See drawings on page 7.) If you have insulin resistance, your body can't use insulin properly. At first, the pancreas produces more insulin to overcome this problem. Over time, the pancreas can't keep up and extra glucose builds up in the bloodstream.

The main causes of insulin resistance are heredity (passed on in the family) and being overweight. Other causes can include high blood pressure or high cholesterol levels.

There are two types of prediabetes:

- **impaired fasting glucose (known as IFG)**  
Your blood glucose is too high in the morning after fasting (not eating or drinking) for 8 to 12 hours.
- **impaired glucose tolerance (known as IGT)**  
Your blood glucose is too high during the day after eating.

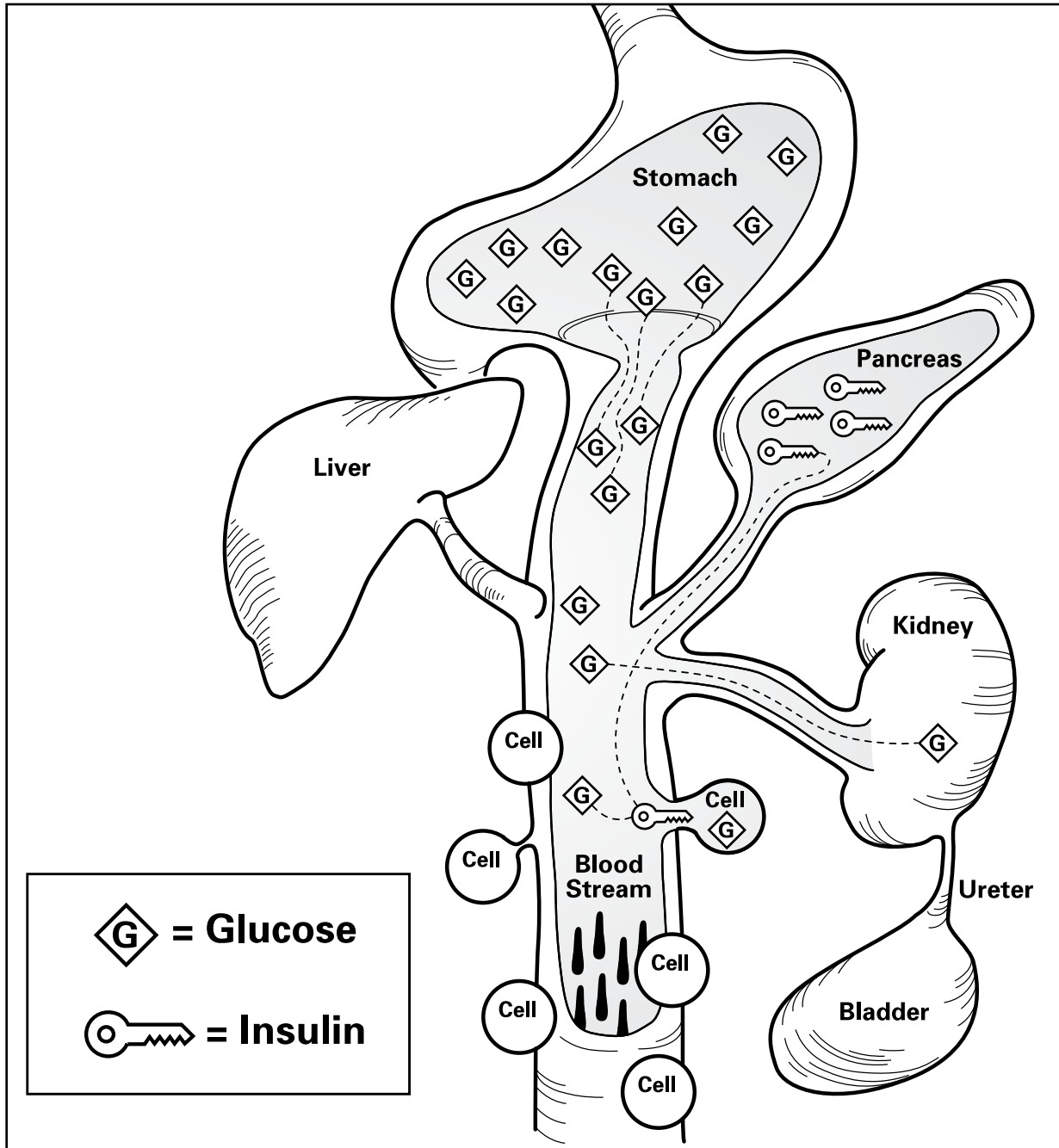
## Tests to measure your risk for developing diabetes

You must have a blood test to measure blood glucose to find out if you are at risk for developing diabetes.

Diagnosis	Tests		A1c
	Fasting	Random	
<b>Diabetes</b>	126 mg/dL or higher on two occasions	200 mg/dL or higher (with symptoms)	6.5 percent or higher
<b>Prediabetes</b>	100 to 125 mg/dL (IFG*: when your blood glucose is too high in the morning)	140 to 199 mg/dL (IGT**: when your blood glucose is too high during the day)	5.7 to 6.4 percent
<b>No diabetes</b>	less than 100 mg/dL	less than 140 mg/dL	5.6 percent or less
*IFG stands for impaired fasting glucose. **IGT stands for impaired glucose tolerance.			

# How Insulin Works

Insulin acts like a key, opening body cells so that glucose can enter the cell to provide a source of energy. Insulin is like the key to a car. A car needs fuel to run, but the key provides the spark that releases the fuel. In your body, insulin is used to “spark” the use of glucose as fuel in your cells.



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Insulin helps your body use glucose for energy.



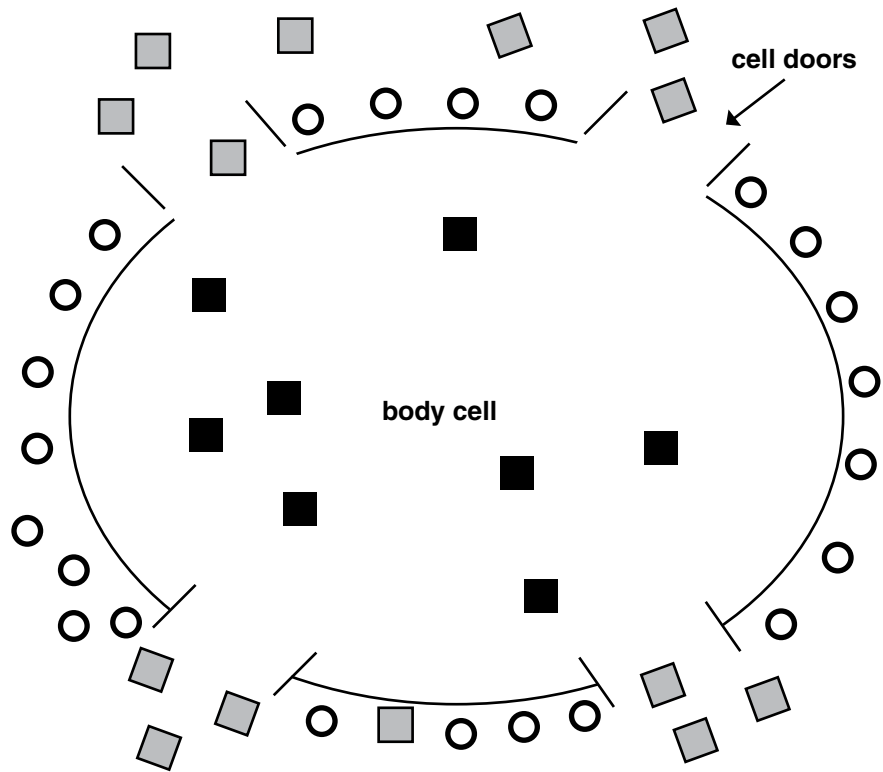
## Normal Body Cell

Cell doors are open to allow insulin to bring glucose into the cells to use for energy.

○ insulin in the blood

◻ glucose in the blood

■ glucose in the body cell



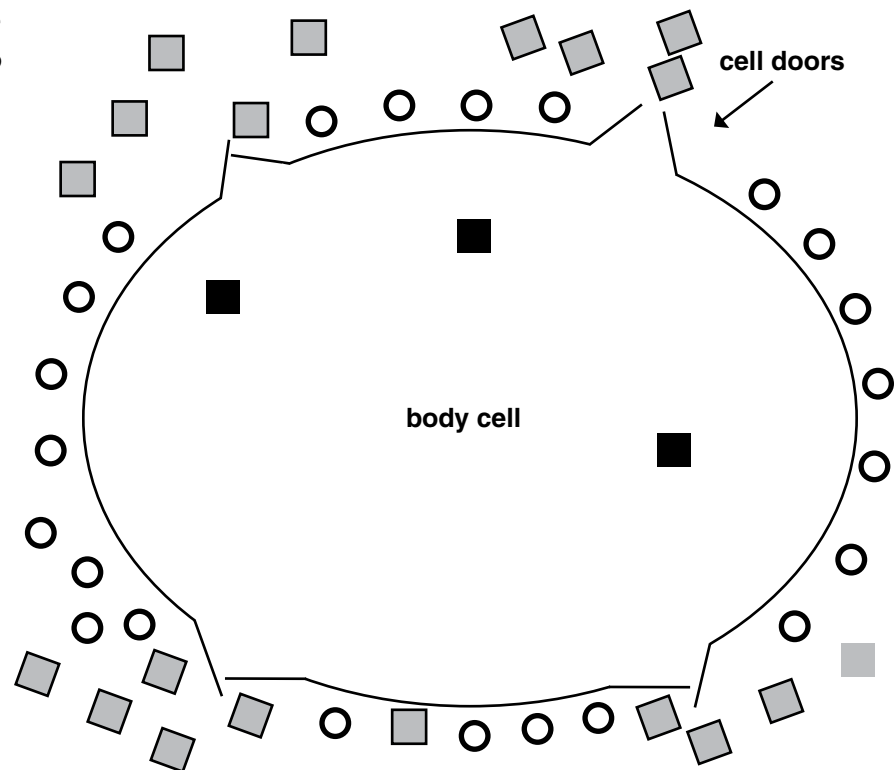
## Insulin Resistant Body Cell

Cell doors are shut. The glucose cannot get into the body cells so they stay in the bloodstream.

○ insulin in the blood

◻ glucose in the blood

■ glucose in the body cell



## Keys to Preventing Diabetes: Lifestyle Choices

- Increase your physical activity.
- Make healthful food choices.
- Lose 5 to 10 percent of your weight (if needed).
- Lower your blood pressure (if needed).
- Lower your cholesterol and triglyceride levels (if needed).
- Take aspirin every day. (**Important:** Talk with your primary care provider if you don't currently take aspirin.)
- Limit the amount of alcohol you drink.
- Quit smoking (if needed).

## Physical Activity and Exercise

Physical activity and exercise are important for everyone, but especially for people with prediabetes. They can lower your blood glucose level and help your body use insulin better. Other benefits include:

- lowering blood pressure
- decreasing **bad** cholesterol and increasing **good** cholesterol
- improving strength and endurance
- increasing flexibility and balance
- making it easier to maintain your weight
- helping you to feel better and have more energy
- more confidence and independence
- reducing stress
- decreasing your risk of dementia
- better quality sleep.

## Did You Know?

Exercise also has mental health benefits. Exercise can improve your:

- mood
- sleep
- attitude
- and more!

## Differences between activities and exercise

Activities are things you do each day such as walking to your car, making a meal, or doing a hobby or housework. These keep your body moving throughout the day.

Exercises are physically exerting movements done to make your muscles, heart and lungs stronger. They must go above and beyond what you do in your daily routine. For example, going to the grocery store is not exercise but going to the mall to intentionally walk would be considered exercise.

Your daily activities are important but regular exercise is needed for all of the benefits listed on page 8.

## Exercise guidelines

Remember the following exercise guidelines.

- Check with your health care provider before starting a program.
- Avoid outdoor exercise in very hot or cold temperatures.
- Start your exercise slowly by stretching and warming up (a slow pace of exercise for 5 minutes). Finish your exercise by cooling down (a slower-paced exercise for 10 minutes).
- Check your feet for signs of blisters, redness or injury. Do not exercise until your feet have healed.

## Tip

To tell how hard you are exercising you can use the “talk test.” This is your ability to have a fairly normal conversation while exercising. If you can sing, you need to work a little harder. If you have trouble talking, you need to slow down.

## Tip

Drink water before, during and after exercise.

## Tip

Examples of exercise are:

- swimming
- rowing
- jogging
- walking
- biking
- low-impact aerobics.

## Types of exercise

There are four types of exercise, including:

- **aerobic (cardiorespiratory):** Aerobic exercise continues for a period of time (at least 10 minutes) without rest. In order to be considered “aerobic,” an exercise must cause you to experience one or more of the following:
  - make you mildly short of breath
  - increase your heart rate
  - cause you to sweat.

**The National Institute on Aging (NIA) recommends that all adults have at least 150 minutes of aerobic exercise each week.** It is best for you to do aerobic exercise 5 to 7 times each week.

- **strength training:** Strength training applies resistance to your muscles which can increase strength, reduce body fat and improve bone health. It is important that you increase the amount of resistance over time. Examples include using:
  - elastic bands
  - cuff and hand weights
  - weight machines.

You can even use your own body weight to increase strength!

**The American College of Sports Medicine (ACSM) recommends that all adults do strength-training exercises at least 2 times each week with at least 1 day of rest in between. As you strength train:**

- make sure to include exercises that target your largest muscles in your upper and lower body
- use enough weight for your muscles to be tired between 8 and 15 repetitions
- increase the amount of weight you are lifting when you can do 15 repetitions or more.
- **balance exercises:** Balance exercises can help to improve your steadiness, reaction time and mobility. Examples include dancing, yoga, Tai Chi and even standing on one leg.

**The ACSM recommends to do 20 to 30 minutes of balance exercises 2 to 7 times each week.**

- **stretching:** Stretching can help to improve flexibility and reduce joint and muscle stiffness. Being more flexible will help you move more freely to do your daily activities.

**According to the ACSM, stretching should be done 3 to 7 times each week. Hold each stretch for 10 to 30 seconds and repeat 2 to 4 times.** Make sure to relax and breathe.

Do not hold your breath or bounce as this could cause an injury.

### **Example: weekly exercise program**

The following page shows an example of how you could plan out 1 week of aerobic exercise, strength training, balance exercises and stretching. Use this as a guide as you plan your exercise program each week. It is important that you plan different exercises (or different combinations of exercises) to continue to build and maintain your muscles and bones.

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
	30 minutes aerobic exercise	30 minutes aerobic exercise		30 minutes aerobic exercise	30 minutes aerobic exercise	30 minutes aerobic exercise
	Strength training		Strength training		Strength training	
		20 to 30 minutes balance exercise	20 to 30 minutes balance exercise		20 to 30 minutes balance exercise	20 to 30 minutes balance exercise
	Stretching	Stretching		Stretching		Stretching

Here are some examples of activities you can do for each type of exercise:

Aerobic Exercise	Strength Training	Balance Exercise	Stretching
<ul style="list-style-type: none"> <li>■ walking</li> <li>■ biking</li> <li>■ swimming</li> <li>■ dancing</li> <li>■ aerobics</li> <li>■ cardio equipment (treadmill, elliptical, bike)</li> </ul>	<ul style="list-style-type: none"> <li>■ upper body exercises</li> <li>■ lower body exercises</li> <li>■ core (abdominal) exercises</li> <li>■ variety of upper, lower and core exercises</li> </ul>	<ul style="list-style-type: none"> <li>■ standing exercises</li> <li>■ Tai Chi</li> <li>■ Qigong</li> <li>■ head movements and eye exercises</li> </ul>	<ul style="list-style-type: none"> <li>■ flexibility exercises</li> <li>■ Pilates</li> <li>■ yoga</li> <li>■ chair yoga</li> </ul>

## How to stick with an exercise program

If you've tried an exercise program in the past that didn't work, don't get discouraged. You can start — and stick with — an exercise program!

- Set a routine. Aim for getting at least 30 minutes of physical activity most days. For example, go for a 30-minute walk at 9 a.m. Or, you can break it up into chunks. Go for a 15-minute walk in the morning and do 15 minutes of strength training in the afternoon.
- Set goals that are specific and realistic. You can't go from no exercise to walking 5 miles a day overnight. Start by walking around the block once or twice. The more exercise you do, the stronger you'll get.
- Exercise with a buddy to help keep you accountable.
- Choose activities you enjoy. Find several activities you can do all year such as walking, bike riding, lifting weights or dancing, so you won't get bored.
- In addition to exercise, try to sneak bits of other activity into each day.
  - Park your car at the end of the parking lot and walk to the store.
  - Take the stairs instead of an escalator or elevator.
  - Get up and walk around every hour if you have a job or hobby that involves sitting.
- To get the right amount of activity through walking, most people need to take about 10,000 steps a day. The average person takes between 700 and 2,500 steps a day! You can buy an inexpensive pedometer or track through an app on your phone to count your steps.
- If you break your new routine, don't be too hard on yourself. Figure out what derailed you and get back on track.

# Making Changes and Goal Setting

## SMART goals

Making changes can be challenging — but it's possible! Changing everything at once can be overwhelming, which is why it's best to set smaller, attainable goals.

Learning to set SMART goals can help you be successful.

**S** **Specific:** What would you like to do?

**M** **Measurable:** How will you know when you've done it?

**A** **Attainable:** Is it something you are able to do?

**R** **Relevant:** Is it important to you?

**T** **Time-bound:** When is the deadline?

## SMART goal example

Here is an example of a SMART goal.

**S** I would like to eat healthier.

**M** I will know I'm eating healthier when I'm eating three servings of vegetables every day.

**A** I will accomplish my goal by keeping easy-to-grab, single-serving containers of fresh vegetables in my refrigerator.

**R** It's important for me to eat healthier to have enough energy to keep up with my busy schedule.

**T** I will start eating healthier on Monday, after I've done my weekend grocery shopping.





**Tip**

Make sure you're celebrating your successes (big and small) as you work toward your goals!

**It's your turn!**

Now that you know how to set goals it's your turn to try! Write down a goal to work on this week using what you've learned about SMART goals.

**S**

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**M**

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**A**

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**R**

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**T**

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# Healthy Eating to Prevent Diabetes

Carbohydrates turn into glucose, affecting your blood glucose levels. There are no good or bad foods. Eating a variety of foods can improve your health and keep meals interesting.

## Tip

Choose carbohydrate foods that are high in fiber such as whole grains, fruits, vegetables and legumes (navy, kidney and black beans, lentils). Fiber:

- slows digestion to make you feel fuller longer
- slows the rate carbohydrates are absorbed into your bloodstream
- helps reduce cholesterol by binding to the cholesterol in your digestive tract and getting rid of it.

The foods you eat fall into three main groups:

- **Protein:** Protein is important for healing, building muscle, strengthening your immune system, helping your body recover from stress and more!
- **Fat:** Fat is a major source of energy for the body. It also helps the body absorb important vitamins.
- **Carbohydrate:** Carbohydrates give your body energy.

All carbohydrate foods turn into glucose. Carbohydrate foods are starches (breads, crackers, cereals, rice, pasta), fruit and fruit juice, milk and yogurt, starchy vegetables (potatoes, dried beans, corn, sweet potatoes, winter squash) and sweets.

Do not avoid carbohydrate foods. They should make up 50 to 60 percent of your food plan.

Carbohydrate counting is a way to help you manage the amount of carbohydrate you eat.

## Dietary Carbohydrate Guidelines for Adults

	Weight Loss	Maintain Weight
Men	45 to 60 grams (3 to 4 carb choices) per meal	60 to 75 grams (4 to 5 carb choices) per meal
Women	30 to 45 grams (2 to 3 carb choices) per meal	45 to 60 grams (3 to 4 carb choices) per meal

## Important

It is not healthy to leave out carbohydrate foods while you try to lose weight and control your blood glucose level.

A carbohydrate choice is a serving that contains about 15 grams of carbohydrate. For most people with prediabetes, a healthful meal plan has 3 to 5 (45 to 75 grams) carbohydrate choices at a meal and 0 to 2 (0 to 30 grams) carbohydrate choices for snacks.

Grams of carbohydrate	Number of carbohydrate choices
0 to 5	0
6 to 10	½
11 to 20	1
21 to 25	1 ½
26 to 35	2
36 to 40	2 ½
41 to 50	3
51 to 55	3 ½
56 to 65	4
66 to 70	4 ½
71 to 80	5

### Quick carbohydrate guide

The following lists give examples of some foods that are equal to one carbohydrate choice or 15 grams of carbohydrate.

Breads and Flours	
<ul style="list-style-type: none"> <li>■ 1 slice bread (1 slice)</li> <li>■ 1 flour tortilla (6 inches)</li> <li>■ one-half English muffin</li> </ul>	<ul style="list-style-type: none"> <li>■ 1 4-inch pancake</li> <li>■ one-half hamburger bun</li> </ul>
Cereals, Grains and Pasta	
<ul style="list-style-type: none"> <li>■ ½ cup cooked and unsweetened cereal</li> </ul>	<ul style="list-style-type: none"> <li>■ ⅓ cup cooked pasta or rice (brown, white)</li> </ul>
Starchy Vegetables, Beans and Lentils	
<ul style="list-style-type: none"> <li>■ ½ cup beans, peas, corn, yams (sweet potatoes) or mashed potatoes</li> </ul>	<ul style="list-style-type: none"> <li>■ 1 cup butternut squash</li> </ul>
Fruit and Fruit Juices	
<ul style="list-style-type: none"> <li>■ 1 small fresh fruit</li> <li>■ ½ cup canned fruit in juice</li> <li>■ ¼ cup dried fruit (raisins, banana)</li> </ul>	<ul style="list-style-type: none"> <li>■ 1 cup cubed melon or whole berries</li> <li>■ ⅓ cup 100% fruit juice</li> <li>■ 1 cup tomato juice</li> </ul>
Milk, Yogurt and Non-dairy Milk and Yogurt	
<ul style="list-style-type: none"> <li>■ 1 cup fat-free, 1% or 2% milk</li> <li>■ 1 cup soy milk</li> </ul>	<ul style="list-style-type: none"> <li>■ ¾ cup plain or artificially sweetened yogurt</li> </ul>
Snacks and Sweets	
<ul style="list-style-type: none"> <li>■ 10 to 15 tortilla chips</li> <li>■ 2-by-2-inch unfrosted cake</li> <li>■ 1 3-inch cookie</li> </ul>	<ul style="list-style-type: none"> <li>■ ½ cup ice cream</li> <li>■ ¼ cup sherbet, sorbet or gelato</li> <li>■ 1 tablespoon jam, jelly, table sugar or honey</li> </ul>
Convenience and Combination Foods	
<ul style="list-style-type: none"> <li>■ ½ cup casserole (hot dish)</li> <li>■ ½ cup pasta or potato salad</li> </ul>	<ul style="list-style-type: none"> <li>■ 1 cup soup: broth type</li> <li>■ ½ cup soup: cream type</li> </ul>

## Heart-healthy eating: making good protein and fat choices

The type and amount of protein and fat you eat can affect your heart health.

Poultry, meat and fish are high in protein which help your muscles stay healthy. However, if you eat too much of these, you add extra calories and fat. Most adults need about 6 to 8 ounces of meat (weight after cooking) each day. Think of this as one small and one medium serving each day. Three ounces look like a deck of playing cards.

You need to eat fat for good health. Fat provides energy and important nutrients. It is important to choose foods that have healthful fats. (See the list below.)

Unhealthful fats can clog blood vessels which can cause a heart attack or stroke. A general rule is to use 1 to 2 teaspoons of fat at each meal.

Types of Fats in Food			
Monounsaturated (most healthful)	Polyunsaturated (healthful)	Saturated (not healthful)	Hydrogenated and partially hydrogenated trans fats (not healthful)
<ul style="list-style-type: none"> <li>■ avocados</li> <li>■ most nuts</li> <li>■ olive, avocado and peanut oil</li> <li>■ peanut butter (natural or trans fat-free)</li> <li>■ tub margarine (trans fat-free with liquid oil as first ingredient)</li> </ul>	<ul style="list-style-type: none"> <li>■ fatty fish (tuna, salmon, trout)</li> <li>■ sunflower, corn and soybean oils</li> <li>■ walnuts</li> </ul>	<ul style="list-style-type: none"> <li>■ coconut and palm oils</li> <li>■ fatty meats</li> <li>■ high-fat milk and cheese</li> <li>■ lard</li> <li>■ butter</li> </ul>	<ul style="list-style-type: none"> <li>■ crackers, cookies, cakes, doughnuts, pastries</li> <li>■ fried fast food and chips</li> <li>■ many pre-packaged or prepared foods</li> <li>■ shortening and stick margarine</li> </ul>

## Dietary Fat Guidelines for Adults

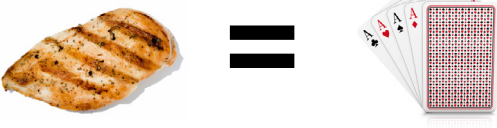
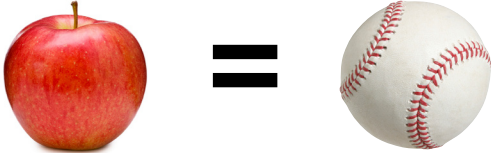
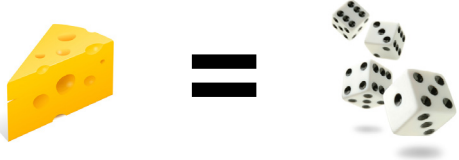
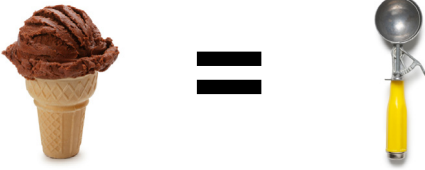
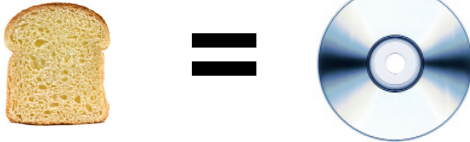

	Weight Loss	Maintain Weight
Men	40 to 55 grams a day	65 to 75 grams a day
Women	30 to 45 grams a day	55 to 65 grams a day

### Tips to decrease saturated fat

- Buy lean cuts of meat such as round or loin.
- Trim all fat from meat before cooking.
- Remove skin and fat from chicken and turkey before cooking.
- Bake, roast, slow cook, broil, braise or grill meats instead of frying.
- Choose white meat more often than dark meat.
- Drain off fat after cooking and blot with a paper towel.
- Use a nonstick surface to pan broil foods.
- Do not eat gravies made with fatty drippings.
- Microwave, steam or par boil vegetables in a small amount of water and season with only a small amount of fat or with spices.
- Use low-fat or fat-free margarine, mayonnaise, salad dressings, cream cheese and sour cream more often than regular versions.

## Understanding portion sizes

When a food scale or measuring cups aren't handy, you can still estimate your portion. Remember:

<p>Three ounces of meat is about the size and thickness of a deck of playing cards.</p>	
<p>One medium apple or 1 cup of cooked vegetables is about the size of a baseball.</p>	
<p>One ounce of cheese is about the size of 4 stacked dice.</p>	
<p>One-half cup of ice cream or 1/2 cup of cooked pasta is about the size of an ice cream scoop.</p>	
<p>One slice of bread or one 6-inch tortilla is about the size of a DVD.</p>	
<p>One teaspoon of butter is about the size of a poker chip.</p>	



## Planning your plate: keeping portions in mind

When you are planning your meals, try to think about what your plate should look like.

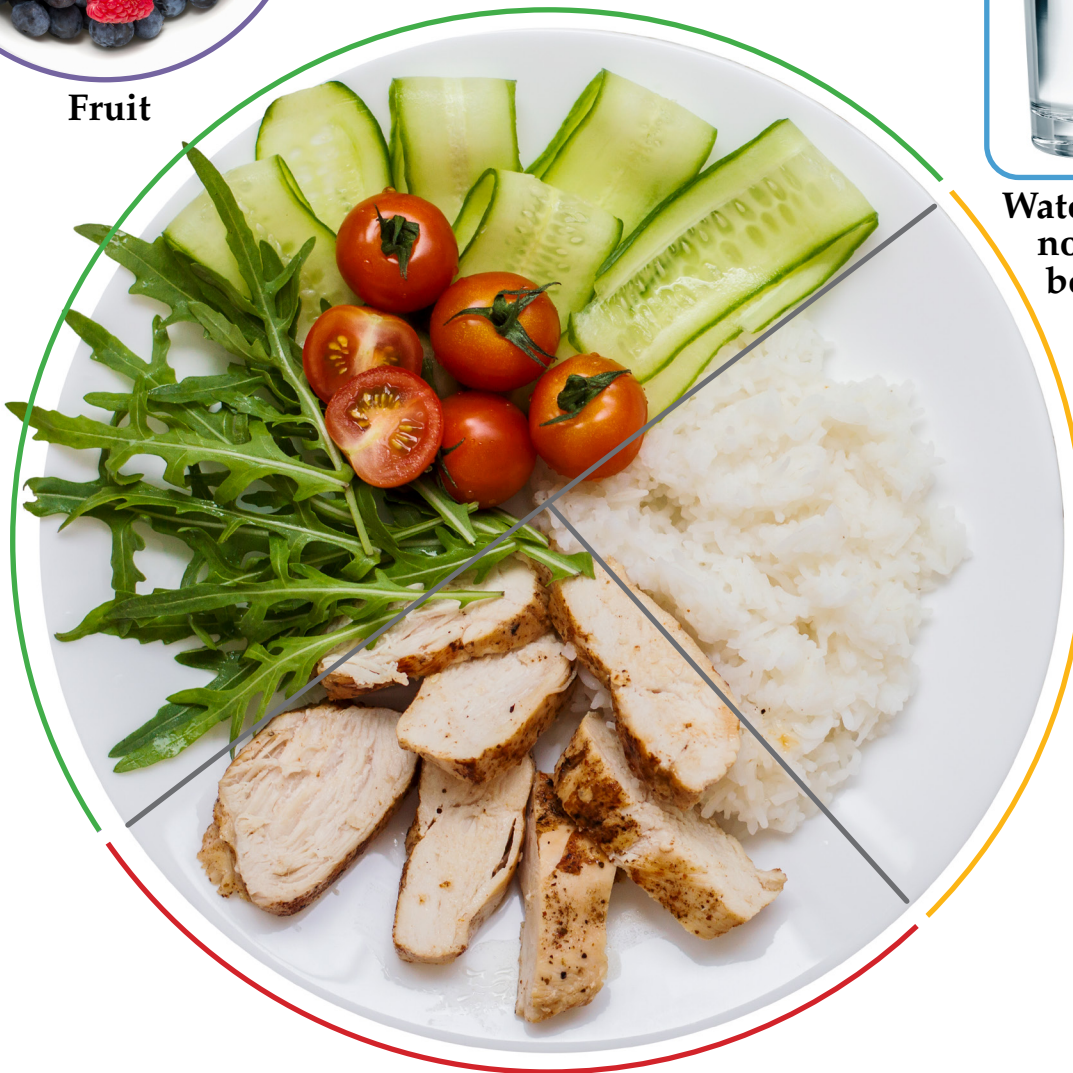


**Fruit**

**Nonstarchy  
vegetables**



**Water, milk or  
no-calorie  
beverage**



**Grains  
or starchy  
vegetables**

**Protein**

**For breakfast:**

- half of your plate should be starches
- the other half should be split between protein and fruit.

**For lunch and dinner:**

- half of your plate should be full of non-starchy vegetables
- the other half should be split between protein and starches
- a small dish of fruit, if you want.

**What to drink:**

Sugary drinks and juice can add empty calories and carbohydrates. Limit or avoid drinks that contains sugar, such as iced tea, lemonade, soda, flavored waters, and any drink that is labeled as “sweetened.” Instead, choose:

- 1 cup fat-free or 1% milk
- ½ cup 100% juice
- 1 cup coffee or tea (no sugar)
- 8 ounces diet soda
- water.



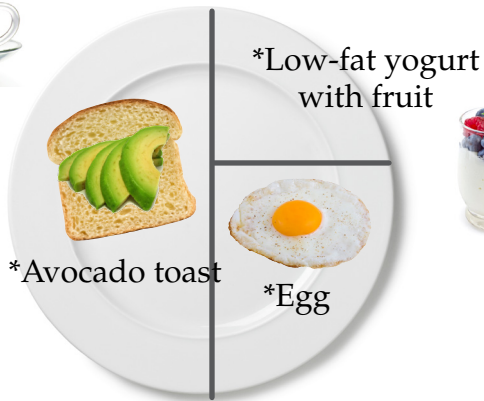
Here are some sample meals and snacks to help you eat well.

## For meals:

### At breakfast:



Tea



\*Avocado toast

\*Low-fat yogurt with fruit

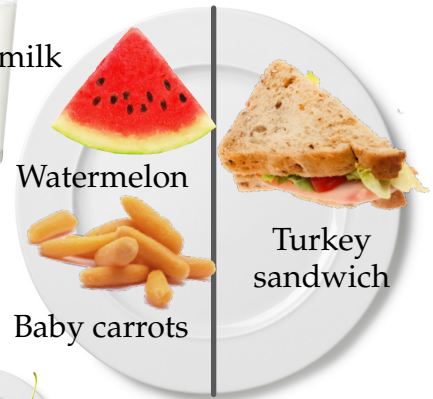
\*Egg



### At lunch:



\*Low-fat milk



Watermelon

Baby carrots

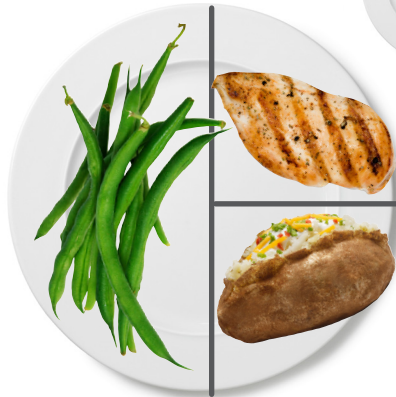
Turkey sandwich

### At dinner:

Water



Green beans



Berries

Chicken breast

Baked potato with \*low-fat sour cream

### Important

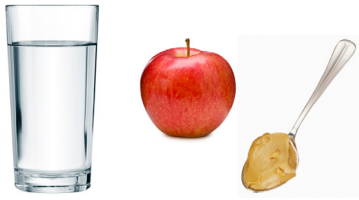
Make sure to include healthful fats with each meal and snack. Examples of foods with healthful fats include:

- olive oil
- peanut butter (natural)
- avocado
- dairy products (low-fat milk or yogurt).

Foods that contain healthful fats are noted with a star (\*) on pages 23 to 25.

## For snacks:

Apple with \*peanut  
butter (natural)



Bran flakes with \*low-fat milk



\*Low-fat yogurt  
with fruit





















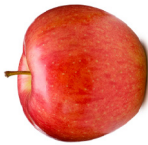

\*Nuts with dried fruit



Vegetables with \*hummus



Choose one food from each column to build a complete meal. Remember to include healthful fats!

Nonstarchy vegetables	Protein	Grains or starchy vegetable	Fruit	Beverage
 <p><b>Brussels sprouts</b> 1 cup raw or ½ cup cooked</p>	 <p><b>Chicken breast</b> 3 ounces cooked</p>	 <p><b>Brown rice</b> ⅓ cup cooked</p>	 <p><b>Banana</b> 1 small</p>	 <p><b>*Low-fat milk</b> 1 cup</p>
 <p><b>Bell peppers</b> 1 cup raw or ½ cup cooked</p>	 <p><b>*Fish</b> 3 ounces</p>	 <p><b>Sweet potato</b> 3 ounces or ½ cup cooked</p>	 <p><b>Grapes</b> 15 grapes</p>	 <p><b>Unsweetened tea</b> No limit</p>
 <p><b>Broccoli</b> 1 cup raw or ½ cup cooked</p>	 <p><b>*Egg</b> 1 to 2 medium</p>	 <p><b>Beans and legumes</b> ½ cup cooked</p>	 <p><b>Oranges</b> 1 small</p>	 <p><b>Sparkling water</b> No limit</p>
 <p><b>Green beans</b> 1 cup raw or ½ cup cooked</p>	 <p><b>*Tofu</b> 3 ounces cooked</p>	 <p><b>Peas</b> ½ cup cooked</p>	 <p><b>Apple</b> 1 small</p>	 <p><b>Black coffee</b> No limit</p>

\*Sources of healthful fats.

# Nutrition Facts

8 servings per container

**Serving size** 2/3 cup (55g)

Amount per serving

**Calories** 230

% Daily Value\*

**Total Fat** 8g 10%

Saturated Fat 1g 5%

Trans Fat 0g

**Cholesterol** 0mg 0%

**Sodium** 160mg 7%

**Total Carbohydrate** 37g 13%

Dietary Fiber 4g 14%

Total Sugars 12g

Includes 10g Added Sugars 20%

**Protein** 3g

Vitamin D 2mcg 10%

Calcium 260mg 20%

Iron 8mg 45%

Potassium 235mg 6%

\*The % Daily Value tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Source of label: U.S. Food and Drug Administration

## How to read food labels

Use the nutrition label at left to understand the following.

- **Serving size:** The serving size lists the amount of food in one serving and the number of servings in one package.
- **Calories:** Calories are a measure of energy released by a food or beverage.
- **Total fat:** Total fat includes all types of fat (saturated, unsaturated, trans). Fat is a major source of energy for the body. It also helps the body absorb important vitamins.
- **Saturated fat:** Saturated fat raises LDL (“bad”) cholesterol. Reduce saturated fats to help protect your heart.
- **Trans fat:** Trans fats may increase LDL (“bad”) cholesterol and decrease HDL (“good”) cholesterol, which increases your risk for heart disease. Eat as little trans fats as possible. Avoid foods that contain “partially hydrogenated” oils.
- **Cholesterol:** Foods from animals (meat, fish, eggs, cheese, butter) have cholesterol. Your body produces enough cholesterol for important functions such as digesting fats, making hormones and building cell walls.
- **Sodium:** Your body needs sodium to help its organs function well and fluids to be in balance. Sodium (salt) is typically used to add flavor and increase the amount of time foods stay fresh. A healthy amount of sodium to consume each day is 2,300 milligrams (mg) or less.
- **Total carbohydrate:** Carbohydrates give your body energy. However, too many can raise your blood glucose.
- **Fiber:** Fiber is the part of food that cannot be broken down during digestion. Because it moves through your body “undigested,” it plays an important role in keeping your digestive system moving and functioning well.

- **Total sugars:** This is the total amount of natural sugars such as lactose (sugar in milk) or fructose (sugar in fruit) and added sugars.
- **Added sugars:** Added sugars are sugars added during the making (processing) of foods. Examples include sugar, honey, pure cane sugar, cane sugar, corn syrup, molasses, brown sugar, agave syrup, maple syrup — and more! Studies have shown consuming more than 10 percent of your total daily calories from added sugar makes it less likely that you will meet your nutrient needs (while staying within your calorie goal). Remember to read the ingredients list to look for sources of sugar!
- **Protein:** Protein is important for healing, building muscle, strengthening your immune system, helping your body recover from stress and more!
- **Percent (%) daily value:** Your body needs more of some nutrients (calcium, dietary fiber, potassium) and less of others (total fat, saturated fat, sodium, added sugars) to function at its best. The % daily value will help you know how much of that nutrient your body needs. In general for each nutrient:
  - 5% daily value or less is considered low
  - 20% daily value or more is considered high.

# Weight Management

## Importance of achieving and maintaining a healthy weight

You can be successful at losing weight but it takes time. You need to have a plan.

When you have prediabetes, there are some important reasons to achieve or maintain a healthy weight:

- Weight loss improves blood glucose levels.
- Weight loss reduces your risk of heart disease, which is the leading cause of death in people with diabetes.
- Losing as little as 5 to 10 percent of your total body weight can make a big difference in your health. (That's 10 to 20 pounds if you weigh 200 pounds.)

## Forget about fad diets

It's common to lose weight on a fad diet and then gain it all back — and more! Fad diets won't help you learn healthier food habits. A healthy lifestyle will help you look and feel your best.

## What it takes to lose 1 pound in 1 week

There are 3,500 calories in 1 pound. This means that to lose 1 pound in 1 week, you need to cut 500 calories out of the foods and beverages you consume each day. You can do this by eating and drinking fewer calories than you usually do, and exercising.

The healthiest way to lose 1 pound in 1 week is to:

- burn 250 calories with exercise each day and cut 250 calories out of the foods and beverages you consume each day.

To make this work, try the following.

- Keep track of your current eating habits and look for easy targets to cut out. If, for example, you eat at a fast food restaurant, a hamburger and small fries is about 500 calories but a quarter-pound hamburger and medium fries is about 900 calories. You save 400 calories by choosing the smaller meal.
- Keep track of your exercise and activity habits for a few days. Do you always look for the closest parking spot in the parking lot? Do you take the elevator rather than walk up a few flights of stairs? You can increase your activity by making a few simple changes.

### Tip

Don't weigh yourself more than once a week.

### Did You Know?

Eating a small piece of fruit instead of a doughnut for a snack will save at least 100 calories.

### Important

Remember to check with your health care provider before starting any new exercise program.

The following chart shows how many calories are burned in 10 minutes by doing certain exercises and activities, according to how much you weigh.

Exercise or Activity	Your Weight in Pounds		
	120 to 130	160 to 170	190 to 200
	Calories Burned		
Walking 2 mph (30 minutes per mile)	30	40	45
Walking 3 mph (20 minutes per mile)	40	50	60
Walking 4 mph (15 minutes per mile)	55	70	85
Aerobic dance	60 to 105	75 to 140	90 to 165
Bicycling (outdoors)	40 to 145	50 to 195	60 to 230
Bicycling (indoor stationary)	25 to 145	30 to 195	40 to 230
Calisthenics	40 to 105	50 to 140	60 to 165
Dancing	30 to 80	40 to 150	45 to 120
Jogging 5 mph (12 minutes per mile)	90	115	135
Jogging 6 mph (10 minutes per mile)	105	140	165
Skiing (cross country)	60 to 145	75 to 195	90 to 230
Swimming	50 to 125	65 to 165	75 to 200

## Meal time weight loss tips

- Don't skip meals. It slows down your metabolism and you may get so hungry that you overeat.
- Eat more slowly.
- Eat foods with fiber such as fruits, vegetables and whole grains to control hunger.
- Limit snacking when you watch TV.
- Drink a full glass of water before a meal.
- Drink fat-free or 1% milk instead of 2% or whole milk.

## Dining out tips

- Study the menu and ask how foods are prepared.
  - **Good choices:** steamed, meat or fish in its own juice, garden fresh, broiled, roasted, poached.
  - **High-fat choices:** fried, breaded, battered, melted cheese on top, creamed, scalloped, butter sauce, pan-fried, sauteed, au gratin.
- Ask for substitutions. Is fat-free milk available?
- Limit butter to 1 to 2 teaspoons.
- Order salad dressings and sauces to be served on the side so you control the amount that goes on your food. Ask for light dressing.
- Try lemon juice or vinegar and oil in place of salad dressings.
- Ask for mustard or ketchup on sandwiches instead of mayonnaise. If you have mayonnaise, order it on the side and use only a small amount.
- Substitute fruit or vegetables for potato chips or french fries.
- Order vegetarian pizza instead of pepperoni or sausage. Ask for half the cheese and more tomato sauce.
- At fast food restaurants, order plain foods such as a regular hamburger or a broiled chicken breast. Skip the bacon, cheese and sauces.
- Limit dessert — or share!
- Be aware of your serving sizes. Larger serving sizes mean more sodium and fat.



## Tip

The more liquid the margarine is, the less trans fat it has. Soft margarines are a better choice than hard ones.

Choose trans fat-free margarines or cooking sprays.

## Heart-smart cooking

- Choose low-fat (lean) cuts of meat labeled “loin” or “round.”
- Remove all fat from meats, and skin and fat from poultry before cooking.
- Use cooking methods that use little or no fat: boil, broil, braise, slow cook, bake, roast, poach, steam, saute, stir-fry with a small amount of recommended oil or use the microwave.
- Don't deep-fry foods. Instead, saute meats or vegetables in a small amount of oil, flavored vinegars, low-calorie cooking spray, water or low-sodium broth.
- Pan broil foods on a nonstick surface. Remove any fat as it cooks.
- Coat cookware with a low-calorie cooking spray or lightly oil the pan. Avoid using shortening or butter.
- Skim fat off soups and stews before serving. Use an ice cube to congeal and remove fat, or a gravy strainer to separate fat from the juices. Chill soups, stews and gravies after cooking so you can remove the hardened fat from the top.
- Choose fat-free or low-fat milk, and low-fat yogurt and cheeses.
- Use herbs, spices or lemon juice to add flavor, instead of butter, bacon or salt.

## Don't get discouraged if you slip

It's hard to make several positive changes all at once. Don't get discouraged if you skipped a couple of days of exercise or ate too many cookies! Get back on track the next day.

## Need help?

Reasons for overeating can sometimes be complicated. Talk to your health care provider or check for local resources if you need help.

# Food and Physical Activity Diary

Use the following example for how to fill out the diary on the next pages. You can make copies of the diary or keep track of the information in a notebook.

Meal	Food or Beverage	Amount	Carb Choices per Serving	Physical Activity or Exercise
<b>Breakfast</b>	<i>bran flakes</i>	<i>1 cup</i>	<i>2</i>	<i>Walked for 30 minutes before breakfast.</i>
	<i>banana</i>	<i>1 small</i>	<i>2</i>	
	<i>milk</i>	<i>½ cup</i>	<i>½</i>	
	<i>coffee, regular</i>	<i>1 cup</i>	<i>0</i>	
<b>Lunch</b>	<i>whole-grain bread</i>	<i>2 slices</i>	<i>2</i>	
	<i>lean roast beef</i>	<i>2 ounces</i>	<i>0</i>	
	<i>lettuce</i>	<i>1 leaf</i>	<i>0</i>	
	<i>tomato</i>	<i>3 medium slices</i>	<i>0</i>	
	<i>mayonnaise (low calorie)</i>	<i>2 teaspoons</i>	<i>0</i>	
	<i>apple</i>	<i>1 medium</i>	<i>1</i>	
	<i>water</i>	<i>8 ounces</i>	<i>0</i>	
<b>Dinner</b>	<i>salmon, broiled</i>	<i>3 ounces</i>	<i>0</i>	
	<i>vegetable oil</i>	<i>1 ½ teaspoons</i>	<i>0</i>	
	<i>potato, baked</i>	<i>1 small</i>	<i>2</i>	
	<i>trans fat-free margarine (or butter)</i>	<i>1 teaspoon</i>	<i>0</i>	
	<i>green beans</i>	<i>½ cup</i>	<i>½</i>	
	<i>carrots</i>	<i>½ cup</i>	<i>½</i>	
	<i>dinner roll, white</i>	<i>1 medium</i>	<i>1</i>	
<b>Snacks</b>	<i>popcorn</i>	<i>2 ½ cups</i>	<i>1</i>	<i>Watched movies.</i>

# Food and Physical Activity Diary

Date: \_\_\_\_\_

Meal	Food or Beverage	Amount	Carb Choices per Serving	Physical Activity or Exercise
Breakfast				
Lunch				
Dinner				
Snacks				

# Food and Physical Activity Diary

Date: \_\_\_\_\_

Meal	Food or Beverage	Amount	Carb Choices per Serving	Physical Activity or Exercise
Breakfast				
Lunch				
Dinner				
Snacks				

# Keeping Your Heart Healthy When You Have Prediabetes

## Preventing heart disease

### Blood pressure and cholesterol goals

Prediabetes is a risk factor for cardiovascular disease (CVD), the leading cause of early death among people with diabetes. CVD refers to a diseased heart (cardio) and diseased blood vessels (vascular). CVD can cause heart disease, stroke, vision loss, kidney failure and nerve damage.

Two conditions that can lead to CVD are high blood pressure and high levels of low-density lipids (LDL or “bad” cholesterol).

Understanding blood pressure and cholesterol and reaching recommended goals can help prevent CVD and reward you with a healthier heart.

### Blood pressure basics

Blood pressure is pressure on the walls of your blood vessels as your heart pumps blood through your body.

If your blood vessels become clogged and narrowed, your blood pressure will increase. It may also increase if you are overweight, have kidney problems or drink too much alcohol. High blood pressure can run in families.

High blood pressure can lead to heart attack or stroke, eye problems and more severe kidney problems.

Blood pressure is written as two numbers separated by a slash, such as 139/89. This is often called a blood pressure reading.

- The top number shows the maximum pressure on your arteries when your heart contracts and forces blood through your body.
- The bottom number shows the minimum pressure on your arteries when your heart relaxes and refills with blood.

### Blood pressure goal

Allina Health recommends a blood pressure of 139/89 or less.

## What can help control blood pressure?

If your blood pressure is high, your health care provider may ask you to take a medicine called an ACE inhibitor. This type of blood pressure medicine is best for people with diabetes. In addition to lowering your blood pressure, it may help keep your kidneys healthy. Your health care provider may also suggest you:

- lose weight
- eat more fruits and vegetables
- reduce the amount of salt you eat
- drink less alcohol
- get regular physical activity.

It is important that you get your blood pressure checked each time you visit your health care provider.

## Cholesterol basics

Cholesterol is a fat-like substance in your blood. Your body makes some cholesterol to help it function properly. You may also get cholesterol from some of the foods you eat and you may inherit a tendency toward high cholesterol.

When your blood cholesterol level is too high, the cholesterol builds up on the walls of your arteries. Over time, this can:

- **block the flow of blood to your heart, depriving it of oxygen** (A partial blockage may result in chest pain. A total blockage will cause a heart attack.)
- **block the flow of blood to your brain, depriving it of oxygen.** (A total blockage will cause a stroke.)

## Cholesterol goals

The American Heart Association and American College of Cardiology recommend taking a statin medicine to protect your arteries and reduce your risk of heart disease.

## What can help control cholesterol?

You can help control your cholesterol level in the following ways:

- Eat foods low in saturated fat, trans fat and cholesterol. This includes:
  - vegetables and fruits
  - whole grains
  - fat-free or low-fat dairy foods and beverages
  - lean protein such as chicken breast, turkey breast, fish, legumes (beans, lentils, peas) and soy

— healthful oils (olive oil, avocado oil) and nuts.

Limit sweets, sugar-sweetened beverages and red meats.  
Avoid eating “tropical” oils such as coconut, palm kernel and palm oils.

- Lose weight if you are overweight. This can lower your LDL level and raise your HDL level.
- Be physically active 3 to 4 times each week for a total of at least 150 minutes. This can also lower your LDL level and raise your HDL level.
- Take any medicine to lower your cholesterol as prescribed. Eating more healthful foods and increasing your activity level are often not enough to reach your cholesterol goals.

You may have a high cholesterol level and not yet have any signs of disease. Your health care provider will recommend how often to have your cholesterol level checked.

### **Low dose of aspirin**

Research shows that if you have diabetes and have heart disease or have had a stroke, taking a low dose of aspirin every day may reduce your risk of more problems.

Aspirin helps prevent blood clots that can block the flow of blood and lead to a heart attack or stroke. But taking aspirin is not safe for everyone, so it is important to talk with your health care provider before you start taking aspirin every day.

**Important: Taking aspirin with blood thinners may increase your risk for bleeding.**

## **Alcohol**

### **Tip**

Alcohol cannot be used as fuel by your body. It is converted to fat.

If you are taking medicines, your triglycerides are elevated (raised) or both, talk with your health care provider about alcohol. If he or she says that you can drink alcohol, you can include it in your food plan as long as you follow these guidelines:

- Limit alcohol when you are trying to lose weight.
- Limit your alcohol to no more than one to two drinks a day for men and one drink a day for women. Serving sizes are:
  - 12 ounces of light beer
  - 5 ounces of dry wine
  - 1 ½ ounces whiskey, gin, scotch or vodka mixed with diet pop or water.

# Quit Tobacco Use

## Did You Know

Tobacco products include cigarettes, electronic nicotine delivery systems (ENDS, includes e-cigarettes), cigars, smokeless tobacco (dip or chew), hookahs, pipes, roll-your-own, and oral nicotine products.

## Did You Know

Smokeless tobacco contains *a lot* of sugar. This can make it harder to control your glucose levels.

Using tobacco makes diabetes harder to control. People who do not use tobacco use less insulin and other medicine to keep diabetes under control.

## How tobacco affects you

Tobacco:

- damages and narrows blood vessels
  - This can lead to infections and amputations.
- increases insulin resistance
  - This can raise your blood glucose.
- increases blood pressure
  - This can lead to stroke or heart disease.
- makes your blood vessels and arteries “sticky,” which can block blood flow
  - This raises your risks for heart disease, kidney disease, retinopathy (eye disease that causes blindness) and nerve damage (peripheral neuropathy).

## E-cigarettes: what you need to know

- E-cigarettes are known by many names such as e-cigarettes, e-cigs, vapes and electronic nicotine delivery systems (ENDS).
- These products use an “e-liquid” found in pre-filled or refillable cartridges, disposables or pods.
- The liquid is heated to create an aerosol that the user breathes in. The heat can turn some of the chemicals into known cancer-causing chemicals.
- Private and federally-funded tests found many of the same chemicals in ENDS products that make cigarettes so dangerous.
  - benzene (found in car exhaust)
  - heavy metals (nickels, tin, lead)
  - arsenic (found in rat poison)
  - formaldehyde (used to preserve dead tissue)
  - glycerin and glycol (used in antifreeze).

Testing has also found chemicals known to cause cancer in humans and scarring in the lungs.



- E-cigarettes are not safe. E-cigarettes are a tobacco product.
- The U.S. Food and Drug Administration (FDA) is starting to regulate ENDS products. This is a slow process.
- The FDA has not approved e-cigarettes as a way to quit smoking.

## Benefits of quitting

- Your body responds quickly to quitting:
  - **8 hours:** The carbon monoxide level in your blood drops to normal. The oxygen level in your blood increases to normal.
  - **24 hours:** Your chance of heart attack decreases.
  - **48 hours:** Nerve endings start to grow again.
  - **2 weeks:** Circulation to your hands and feet improve. Your ability to exercise improves.  
(Source: World Health Organization)
- There are many health benefits to quitting. Quitting:
  - lowers your chances of stroke, heart disease, insulin-resistance and nerve damage
  - gives you better glucose control
  - lowers your risks of many types of cancers.

## Not Ready to Quit? Consider Taking a Break!

If quitting tobacco seems like too much right now, consider taking a break or a vacation from tobacco use.

This can help you get your blood glucose under control by restoring balance\*.

- Set a goal to stop using tobacco.
- Talk with your doctor for resources or ways to cope with withdrawal symptoms.

If this goes well, maybe you will take more breaks during the year. This could lead to a tobacco-free life!

\*Keep taking your medicine.

## Suggestions for quitting tobacco

Studies show that the most successful way to quit uses counseling, medicines and follow-up. Ask your health care provider for more information.

- Prepare to stop.
  - Get support from family and friends.
  - Avoid places where you know you will want to use tobacco.
  - Plan activities to replace using tobacco.
- Choose a day to stop.
  - Get rid of tobacco products, ashtrays and lighters.
- Stop.
  - Stop on the day you planned to stop.
  - Be careful with situations or activities in which you might be tempted to start using tobacco again.
  - Try to keep your focus on today, not the future. Tell yourself, "I am not smoking today."



### Product-specific Resources

- financial aid Nicotrol® inhaler
  - 1-844-989-PATH (7284)
  - [pfizerrxpathways.com](http://pfizerrxpathways.com)
- Plant Extracts aromatherapy
  - 1-877-999-4236
  - [plantextractsinc.com](http://plantextractsinc.com)

- Stay stopped.
  - Think positive thoughts. Remember why you decided to stop. Reward yourself.
  - Remember that your craving will pass whether you use tobacco or not.
  - Do not play games like telling yourself, “One cigarette won’t hurt,” “I deserve a dip,” “I just want to see how a cigarette tastes.” Your brain might tell you these things to persuade you to go back to tobacco.

### Resources for quitting

- Quit Partner
  - 1-800-QUIT-NOW (1-800-784-8669) or [quitpartnermn.com](http://quitpartnermn.com)
  - American Indian: 1-833-9AI-QUIT or [aiquit.com](http://aiquit.com)
  - Spanish: 1-855-DEJELO-YA (1-855-335-3569) or [quitpartnermn.com/es](http://quitpartnermn.com/es)
  - [asiansmokersquitline.org](http://asiansmokersquitline.org)
- online tobacco cessation support
  - [smokefree.gov](http://smokefree.gov)
- American Lung Association/Tobacco Quit Line
  - 651-227-8014 or 1-800-586-4872

# Blood Glucose Record

Test your blood glucose nine times before seeing your health care provider. Take three tests before breakfast, three tests before your main meal and three tests 2 hours after your main meal. Record the results below. Bring this information to your next appointment.

Date	Before Breakfast	Before Main Meal	2 Hours After Main Meal
		Nondiabetes	Diabetes
Before a meal		less than 100 mg/dL	89 to 139 mg/dL
2 hours after a meal		less than 140 mg/dL	less than 160 mg/dL



[allinahealth.org](http://allinahealth.org)