

**Diabetes  
Education**  
SESSION 2



*We'll treat you right*





# Learning to Read Food Labels

## Serving size

Everything on the food label is based on serving size. Always read the serving size first.

## Calories

Calories are based on the serving size. If you use more than one serving, you need to count the calories for each serving used.

## Calories From Fat

Number of calories supplied by fat in a serving of food. Choose products that have 3 grams or less from fat per 100 calories of serving.

## Total fat

Choose foods with 5 grams of fat or less per serving.

## Saturated fat

Limit your saturated fat to 2 grams or less per serving.

## Cholesterol

Only foods from animal sources contain cholesterol. Limit your intake to 300 mg per day, or 200 mg per day if you have high cholesterol. Best choice: 20 mg or less cholesterol per serving.

## Sodium

Limit your salt intake to 2,400 mg per day (400 mg or less per serving, or 800 mg per meal) or generally 2,000 mg per day if you have high blood pressure or are on a sodium restricted diet (check with your doctor for your specific needs).

## Total Carbohydrate

Total carbohydrates are made up of dietary fiber and sugars. Most people should have 40 -60% grams of carbohydrates per meal.

## Dietary Fiber

Choose foods that have 5 grams or more of fiber.

## Sugar

Select foods with 5 grams or less of sugar per serving, except fruit, milk, and yogurt.

## Protein

Choose lean cuts of meat and low-fat cheeses. 5 - 7 oz. of protein per day is adequate for most peoples' needs. One ounce = 7 grams of protein.

## Nutrition Facts

Serving Size 1 cup (28g)

Servings Per Container About 15

### Amount Per Serving

Calories 100    Calories from Fat 15

**% Daily Value\***

**Total Fat** 2g                      3%

    Saturated Fat 0g                      0%

    Trans Fat 0g

**Cholesterol** 0mg                      0%

**Sodium** 190mg                      8%

**Total Carbohydrate** 20g    7%

    Dietary Fiber 3g                      11%

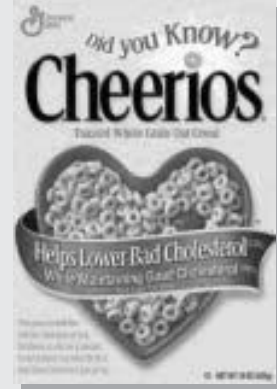
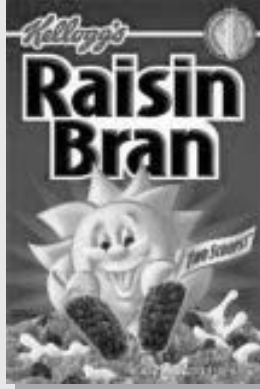
    Sugars 1g

    Other Carbohydrates 16g

**Protein** 3g



# Learning to Read Food Labels



## Nutrition Facts

Serving Size 3/4 cup (31g)  
Servings Per Container About 15

### Amount Per Serving

Calories 130 Calories from Fat 15

#### % Daily Value\*

<b>Total Fat</b> 2.5g	4%
Saturated Fat 0.5g	3%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 190mg	8%
<b>Total Carbohydrate</b> 24g	8%
Dietary Fiber 1g	4%
Sugars 6g	
Other Carbohydrates 17g	
<b>Protein</b> 3g	

## Nutrition Facts

Serving Size 1 cup (55g)  
Servings Per Container About 13

### Amount Per Serving

Calories 170 Calories from Fat 10

#### % Daily Value\*

<b>Total Fat</b> 1g	2%
Saturated Fat 0g	0%
Trans Fat 0g	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 310mg	13%
<b>Total Carbohydrate</b> 43g	14%
Dietary Fiber 7g	28%
Sugars 18g	
Other Carbohydrates 17g	
<b>Protein</b> 4g	

## Nutrition Facts

Serving Size 1 cup (28g)  
Servings Per Container About 15

### Amount Per Serving

Calories 100 Calories from Fat 15

#### % Daily Value\*

<b>Total Fat</b> 2g	3%
Saturated Fat 0g	0%
Trans Fat 0mg	
<b>Cholesterol</b> 0mg	0%
<b>Sodium</b> 190mg	8%
<b>Total Carbohydrate</b> 20g	7%
Dietary Fiber 3g	11%
Sugars 1g	
Other Carbohydrates 16g	
<b>Protein</b> 3g	

Serving size: \_\_\_\_\_

Total Carb: \_\_\_\_\_ g

1 cup is \_\_\_\_\_ g

Serving size: \_\_\_\_\_

Total Carb: \_\_\_\_\_ g

1 cup is \_\_\_\_\_ g

Serving size: \_\_\_\_\_

Total Carb: \_\_\_\_\_ g

1 cup is \_\_\_\_\_ g



# Guidelines for Sick Days



Illness, infection, surgery or chronic emotional stress can elevate blood sugar levels. The body releases hormones in response to illness, infection, and emotional stress. These "stress hormones" cause an increased release of stored glucose from the liver. They also interfere with the blood sugar lowering effect of insulin and diabetes medications. As a result, it is difficult to keep blood sugar within target range.

It is important to know what to do when these situations occur to prevent high blood sugar. If not treated quickly, illnesses and infections can lead to a condition called Hyperosmolar Hyperglycemic State, which can be dangerous and life-threatening. Make a sick day plan in advance of an illness.

## Medications

**Always take your insulin or diabetes pills!** If you need frequent doses of over-the-counter medications, make sure they are sugar and alcohol-free. Ask your health care provider and/or pharmacist for suggestions.

## Monitoring

Test blood sugars at least every 4 - 6 hours. If your blood sugar is over 300 mg/dl, you should call your health care provider.

## Vomiting and Diarrhea

Vomiting and/or diarrhea can cause serious loss of fluids. Not only is it important to replace fluid loss, but it is also important to replace the sodium and potassium (electrolytes) lost. Keep one or two of the following sodium

and potassium-containing liquids on hand:

- **Sodium:** Gatorade, Club Soda, Tomato or Vegetable Juice, Broth, Bouillon Cubes
- **Potassium:** Gatorade, Grapefruit Juice, Orange Juice, and Tomato Juice

If you are vomiting: stop drinking fluids for 1 hour to let your stomach rest. Rest in a reclining position; do not lie flat. After 1 hour, try small sips of regular 7-Up™ or Sprite™ over ice chips every 5 minutes.

If vomiting or diarrhea continues for more than 6 hours, you should call your health care provider or go to the Emergency Room.

## Drink Plenty of Fluids

Both fever and elevated blood sugars increase fluid needs. One of the symptoms of high blood sugar is increased urination, which can lead to dehydration and a further increase in blood sugar. To prevent dehydration, drink at least 1 cup of sugar-free liquid every hour, in addition to eating your meals. Examples of sugar-free liquids are: water or herbal tea; sugar-free flavored waters; sugar-free sodas, ginger ale, club soda; broth or bouillon; sugar-free Popsicles; sugar-free gelatin; Crystal Light™ or sugar-free Kool Aid™. Try to drink twelve 8-ounce glasses of liquid each day.

## Meals

- If you CAN eat: Try to eat as much of your regular meals as possible. Smaller, more frequent meals, soft foods, and drinks may be easier to tolerate if you have a poor appetite

or are nauseated. If you CANNOT eat your usual meals, eat or drink 15 grams of carbohydrate every hour, or 45 to 50 grams every 3 to 4 hours. Please refer to the "Carbohydrate Replacement List" for examples. Sip liquids slowly over the hour to help keep them down. Do not worry about including protein foods such as meat, cheese, eggs, unless you can tolerate them. To prepare for sick days, make sure you have a small stock of non-diet soft drinks, juice, broth, applesauce and regular gelatin on hand. See List of "Foods to Keep on Hand".

## Call your health care provider when:

- You have been sick or have had a fever for two days and are not getting better
- You have been vomiting or having diarrhea for more than 6 hours
- Your glucose levels are higher than 300 mg/dl even though you have taken extra medication
- You are not certain what to do to take care of yourself
- Be ready to tell your health care provider what medicines you have taken, how long you have been sick, whether you can eat and keep food down, whether you have lost weight, and what your temperature and blood sugar levels are. To be prepared, keep written records of all these things as soon as you become sick.

## Foods to keep on hand

- Bouillon cubes, soups and broths
- Sugar-free and regular Popsicles™, sodas, gelatin, Kool Aid™, Crystal Light™
- Fruit juices, Gatorade™
- Graham crackers, saltine crackers
- Instant pudding, custard mix, mashed potatoes
- Instant hot cereal, grits
- Canned fruit, applesauce (lite)

## Carbohydrate Replacements:

The quantities listed below contain 15 grams of carbohydrate

- No sugar added ice cream - ½ cup
- Gatorade™ - 1 cup
- Regular Jell-O™ - ½ cup
- Fruit juice, regular soda or ginger ale - ½ cup
- 1 Popsicle™ or frozen juice bar (read label)
- Soups (read label)
- Tomato or vegetable Juice - 1½ cup

- Canned fruit (lite) - ½ cup
- Canned fruit (regular) - 1/4th cup
- Toast or bread - 1 slice
- English muffin - ½
- Cooked cereal or grits - ½ cup
- Instant cereal - 1 pkg. (read label)
- Cooked pasta - ½ cup
- Mashed potatoes - ½ cup
- Saltine-type crackers - 6
- Graham crackers - 3 squares
- Sugar-free pudding - ½ cup
- Regular pudding - ¼ cup



# Alcohol Use and Diabetes



## Sensible Alternatives to Alcoholic Beverages

### Tomato Highball

1/3 cup tomato juice + 1 tsp. lemon juice, + 1/2 tsp. Worcestershire sauce. Combine ingredients in an 8 oz. glass; pour over ice; fill with club soda and stir well.

### Orange Rum Cooler

Pour diet orange soda over crushed ice in a tall glass. Add 1/2 tsp. imitation rum flavoring + 1 - 2 dashes Angostura Bitters™. Stir vigorously.

### Lime Snap

Pour diet lime soda over crushed ice in a tall glass. Add 3 - 4 dashes Angostura Bitters™. Stir vigorously. Garnish with fresh lime wedges and a maraschino cherry.

### Cherry Brandy Swizzle

Pour diet cherry soda over ice cubes in an 8 oz. glass. Add 1/2 tsp. imitation brandy flavoring. Stir vigorously. Garnish with a maraschino cherry.

### Rum-Cola Highball

Pour 1 tsp. imitation rum flavoring + 1/2 tsp. lemon juice over ice cubes in an 8 - 9 oz. glass. Fill glass with chilled diet cola. Garnish with orange slice.

### Dieter's Delight

Plain club soda over ice cubes. Garnish with slices of lemon, lime or orange.

### Grape Fizz Highball

Crush 1 ice cube and place in a 5 - 6 oz. wine glass. Add 2 tbsp. unsweetened grape juice + 1/4 tsp. lemon juice. Fill glass with chilled diet ginger ale. 1 serving = 1/2 fruit exchange or seven grams carbohydrate.

Should I drink alcohol if I have diabetes? The best answer to this question should come from your health care provider. If he or she does allow alcoholic beverages in your meal plan, the following guidelines may help you to make good decisions.

Liver metabolizes alcohol; it takes about 2 hours for a 150 pound person to break down 1 drink. If you drink alcohol faster than your body breaks it down, the alcohol affects your brain, and your actions and judgment may be impaired. If you regularly drink a large quantity of alcohol each day, you may develop liver disease and other health problems. One gram of alcohol has seven calories; increased alcohol consumption may result in weight gain.

## The effect of alcohol on blood sugar

- Normally the liver helps to keep blood sugar from going too low by slowly releasing glucose into the bloodstream. Alcohol may cause low blood sugar by inhibiting the liver's ability to make new glucose when needed. This lowering of blood sugar may happen as many as 6 to 12 hours after the last alcoholic beverage.
- In combination with insulin or diabetes medication, alcohol may cause blood sugar to reach a dangerously low level.
- An alcoholic drink made with a sweet mixer, such as a Margarita, or rum and regular Coke™, can cause blood sugar to go too high at the moment of consumption.

## Safe Sipping Tips

- Drink only with your health care provider's permission.
- Drink only when diabetes is under good control.
- Limit alcoholic drinks to 1 per day for women and 2 per day for men.
- Always drink alcohol with food, not on an empty stomach.
- Sip slowly to make the drink last.
- Drink only non-caloric mixers.
- Check your blood sugar after your drink to see how alcohol affects you; remember this may be as much as 6 to 12 hours later.
- Alcohol combined with diabetes medications and exercise or dancing makes your blood sugar even more likely to go too low.
- Wear medical ID. If you have low blood sugar, you want others to know that you have diabetes and are not drunk. Many people with diabetes have been mistakenly "thrown into the drunk tank."
- Do not drink and drive.

## Alcohol, Calories, and Exchange

One gram of alcohol has 7 calories, large alcohol consumption may result in weight gain. Calories that come from alcohol must be counted as part of the meal plan. Alcohol more closely resembles fat than protein or carbohydrate and should be substitute for fat in the meal plan.

Beverage	Amount	Calories	Carb. Grams	Exchanges
Light beer	12 oz.	100	5	2 fats
Regular beer	12 oz.	150	13	2 fats, 1 starch
Dry wine	4 oz.	80 - 85	0 - 2	2 fats
Sweet wine	4 oz.	105	5	2 fats,
Wine cooler	12 oz.	215	30	2 fats, 2 starch
Gin, rum, etc.	1.5 oz.	100	0	2 fats
Liqueurs, cordials	1.5 oz.	160	18	2 fats, 1 starch
Daiquiri	4 oz.	220	2	2 fats
Bloody Mary	5 oz.	115	5	2 fats



# Cholesterol, Triglycerides, and Diabetes

## Cholesterol

Many people diagnosed with diabetes have high cholesterol levels. Cholesterol is a soft, waxy substance found in the blood stream and cells of the body. Cholesterol comes from food of animal sources, and our liver also produces cholesterol.

### There are 2 types of cholesterol:

- LDL Cholesterol: LDL cholesterol carries cholesterol through the blood stream and deposits it within the walls of the arteries, forming plaque which can build up and clog arteries.
- HDL Cholesterol: HDL cholesterol helps remove or carry the LDL cholesterol away from the arteries and back to the liver where it can be passed by the body.

## Triglycerides

Triglycerides are another type of fat in your blood. High triglycerides are associated with high fat and high caloric intake and alcohol consumption. When your blood sugars are out of control, your triglyceride level may be elevated as a result.

## The effect of high cholesterol and triglycerides on health

The waxy, fatty cholesterol is deposited in the lining of the arteries, resulting in a build-up of plaque. When the artery wall becomes thickened with plaque, the blood flow to the heart and brain may be severely reduced or completely blocked and a heart attack or stroke can occur. This can also occur in other organs.

## Check your cholesterol and triglycerides

The American Diabetes Association recommends that people with diabetes have their cholesterol and triglycerides checked every year and more often if they are taking cholesterol and/or triglyceride-lowering medications.

### Target cholesterol levels for people with diabetes

Total Cholesterol	< 200mg
LDL	< 100mg
HDL for men	≥ 45mg
HDL for women	≥ 55mg
Triglycerides	< 150mg

## Lifestyle changes to control cholesterol and triglycerides

- Maintain a healthy weight
- Eat meals lower in fat:
  - Use less butter, margarine, salad dressings, mayonnaise, sour cream, cream cheese and other fats in cooking and at the table
  - Avoid frying; use non-stick sprays instead
  - Choose low-fat dairy products such as milk, yogurt, and cheeses
  - Limit whole eggs to 2 – 3 per week, avoid bacon and sausage
  - Eat small portions of meat, fish and poultry
- Eat more fruits and vegetables and choose whole-grain breads, crackers and cereals
- Keep blood sugar in good control
- Exercise regularly
- Limit alcohol intake
- Take prescribed medications correctly
- Quit smoking if you are smoking

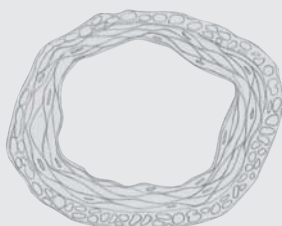
## What Causes Coronary Artery Disease?

CAD is caused by atherosclerosis, the thickening and hardening of the inside walls of arteries. Some hardening of the arteries occurs normally as you grow older.

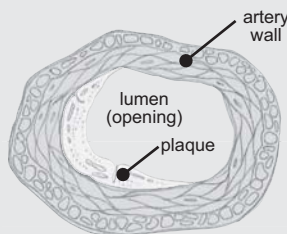
In atherosclerosis, plaque deposits build up in the arteries. Plaque is made up of fat, cholesterol, calcium, and other substances from the blood. Plaque buildup

in the arteries often begins in childhood. Over time, plaque buildup in the coronary arteries can:

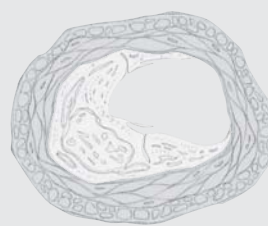
- Narrow the arteries so that less blood can flow to the heart muscle
- Completely block the arteries and the flow of blood
- Cause blood clots to form and block the arteries.



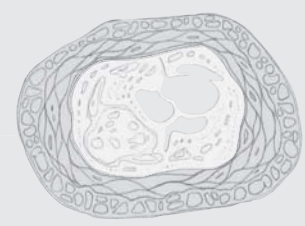
Normal coronary artery with no atherosclerosis and a widely patent lumen that can carry as much blood as the heart muscle needs.



Beginning atherosclerosis. Plaque deposits have narrowed the lumen, reducing blood flow to the heart muscle.



The degree of atherosclerosis is much greater in this coronary artery. Blood flow to the heart muscle is reduced by over half.



The risk of a heart attack is greatly increased as blood flow to the heart muscle is further reduced by advancing atherosclerosis.



# Heart Disease, Stroke, and Diabetes

People with diabetes are at a higher risk for heart disease and stroke.

## Causes of heart attacks

A heart attack can occur when the blood supply to a part of the heart muscle is severely reduced or completely blocked. When blood flow is interrupted, damage or death to an area of the heart muscle occurs resulting in a heart attack (myocardial infarction). This blockage is often caused by:

- A build-up of fat-like substances (atherosclerosis)
- A blood clot (coronary thrombosis)
- A coronary artery may go into a spasm, cutting off blood supply

## Causes of strokes

Strokes can occur when the blood supply to part of the brain gets clogged with fatty deposits, or a blood vessel bursts causing bleeding in the

brain. Brain cells may die or be damaged. Often this blockage is caused by:

- A build-up of fat-like substances (atherosclerosis)
- A blood clot (cerebral thrombosis)
- High blood pressure (contributes to the bursting of blood vessels)

## Prevention

- Keep blood sugar within range
- Control blood pressure
- Keep a healthy weight
- Maintain safe cholesterol levels
- Follow healthy eating patterns
- Don't smoke
- Manage stress
- Regular physical activities
- Take medications as directed

## Signs of a heart attack

- Chest pain
- Chest pressure or heaviness
- Squeezing or tight sensation in your chest
- Numbness or pain in your shoulders or jaw
- Pain in either arm
- Nausea, vomiting or "heartburn"
- Cold sweats
- Difficulty breathing

## Signs of stroke

- Sudden, severe headaches with no apparent cause
- Sudden weakness or numbness of the face, arm or leg on one side of the body
- Sudden dimness or loss of vision, particularly in one eye
- Sudden loss of speech, trouble talking or understanding speech
- Sudden dizziness, unsteadiness or falls, especially along with any of the previous symptoms

## Heart Disease and Stroke Risk Factors

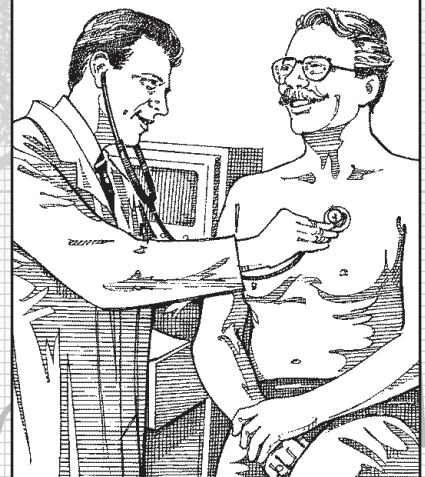
### Risk Factor

- Total cholesterol level >200
- LDL cholesterol level >100
- HDL cholesterol level <60
- Blood pressure >140/90
- Diabetes
- Cigarette smoking
- Overweight
- Physical Inactivity
- Family history of heart disease before age 55
- Male

### What can be done to help?

- Improve diet, increase exercise
- Improve diet, increase exercise
- Improve diet, increase exercise
- Lower blood pressure
- Control blood sugar levels
- Stop smoking
- Lose weight
- Become more active

The more risk factors you have, the greater your risk of cardiovascular disease.





# High Blood Pressure and Diabetes

People with diabetes are twice as likely to have high blood pressure (hypertension); almost 75% of all adults with diabetes have high blood pressure. High blood pressure, also called hypertension, is a condition where the force of the blood inside the vessels is too high, resulting in increased risk of heart disease and stroke. Diabetes reduces the circulation of the entire body. High blood sugars and high blood pressure can damage the fragile blood vessels that supply blood to other vital organs such as the kidneys, eyes, and extremities.

## Blood pressure goals

Blood pressure reading is represented by 2 numbers. The first number is the pressure as your heart beats and pushes blood into the blood vessels. The second number is the pressure when your heart rests between beats. Keeping blood pressure BELOW 130/80 will help prevent health problems.

## Signs or symptoms of high blood pressure

High blood pressure does not have any notable symptoms. It is important to check your blood pressure regularly. When blood pressure is severely high, you may have a headache or feel fatigue.

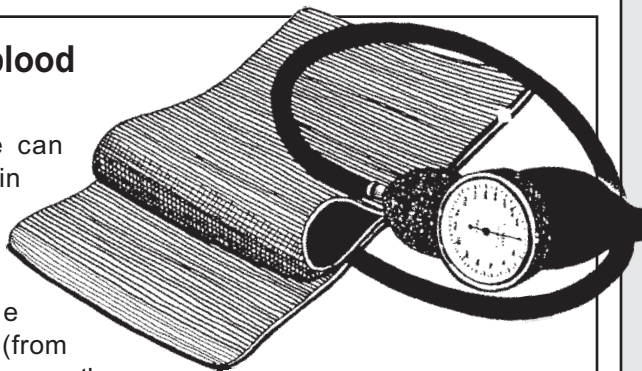
## Signs and symptoms of reduced circulation

There are no obvious early signs of decreased blood supply to the eyes and kidneys; therefore, annual testing of the eyes and kidneys is extremely important to detect any possible abnormalities that you may not feel or notice. On the other hand, signs of decreased blood supply in the legs are more apparent. You may have pain in the back of the legs (calf, thigh, buttocks) when walking. This pain usually goes away with rest. You may have slow healing of wounds, which leads to infection and risk of gangrene (tissue death due to poor blood supply). Gangrene leads to amputation.

## Causes of high blood pressure

High blood pressure can result from changes in blood vessel walls, for example when blood vessels become stiff (hardening of the arteries), too narrow (from buildup of fatty substances on the wall), and/or too full (extra fluid). High blood pressure is also more common among people who:

- Have diabetes
- Are overweight
- Are physically inactive
- Are older
- Are smokers
- Have diets high in fat and salt
- Are of African-American or Hispanic descent
- Have a family history of high blood pressure



## Living with High Blood Pressure

If you have high blood pressure, it is important that you:

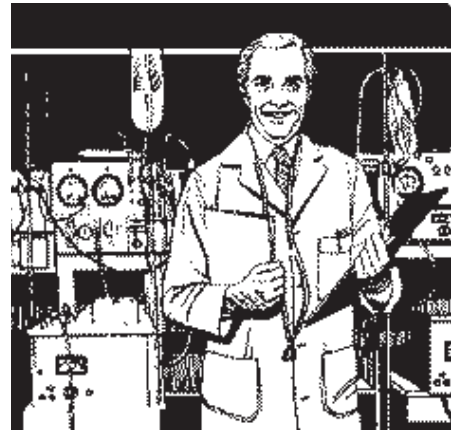
- Keep track of your blood pressure. Learn to take your own blood pressure at home or have it regularly checked by a health care professional..
- Talk to your health care provider about the names and dosages of your blood pressure medicines and how to take them.
- If you think you're having other problems (side effects) from taking your medicine, talk to your doctor.
- Refill blood pressure medicines before they run out.
- Take blood pressure medicines exactly as directed.
- Keep follow-up appointments with your health care provider.
- Choose healthier habits - for example, eat a heart healthy diet, exercise regularly, and don't smoke.
- High blood pressure has no symptoms. If you have it, you cannot tell by the way you feel when your blood pressure level is high.
- Limit caffeine and alcohol
- Keep a healthy weight
- Keep blood sugar levels within the target range
- Keep blood cholesterol and triglycerides levels within recommended range
- Follow a meal plan that is low in fat and salt



# Kidney Disease and Diabetes

## Diabetes and Kidney Disease (Nephropathy)

Kidneys have millions of tiny blood vessels, called nephrons, that act as filters. Their job is to remove waste products, chemicals and excess water from the blood and dispose of them in the urine. Uncontrolled diabetes can damage the kidneys and cause diabetic nephropathy. Diabetes is the leading cause of kidney failure. High levels of blood sugar make the kidneys filter too much blood and work extra hard. In time, kidneys begin to fail and lose their ability to filter out waste products. They also start to leak and allow protein and glucose to pass into the urine. Finally, End Stage Renal Disease (ESRD) may develop, which requires kidney transplant or on-going dialysis.



### Signs of diabetic nephropathy\*

There are no signs of kidney damage as it is developing. When later signs are apparent, significant damage may have already occurred.

- Fluid build-up
- Poor appetite with a metallic taste in the mouth
- Difficulty concentrating and thinking clearly
- A decrease in the amount of urine
- Upset stomach
- Weakness
- Loss of sleep

\* **These symptoms need to be reported to your health care provider promptly.**



### Prevention and management of diabetic nephropathy

Not everyone with diabetes develops kidney disease. Many factors can influence the development of kidney disease.

- Keep your blood sugar average (A1C test) under 7%. High blood sugar can damage nephrons in the kidneys.
- Keep your blood pressure under 130/80. Elevated blood pressure has a dramatic effect on the rate at which kidney disease progresses.
- Do not smoke. Smoking increases blood pressure.
- Have microalbuminuria test done every year to determine whether there is protein in your urine.
- Have a creatinine blood test done every year to determine levels of waste build up in your blood.
- Prevent urinary tract infection (bladder infection). Immediately report any signs of infection to your health care provider for early treatment.
- Avoid salt and foods high in sodium.
- Exercise regularly and maintain a healthy weight.
- Many doctors prescribe ACE inhibitors for their patients with high blood pressure and kidney disease. Recent studies suggest that ACE inhibitors, which include captopril and enalapril, slow the progression of kidney disease in addition to lowering blood pressure.
- Doctors may prescribe a low-protein diet for individuals with a large amount of protein in the urine to lessen the workload on the kidneys. Consult with your physician or dietitian before initiating a low-protein diet.
- Once your kidneys fail, dialysis is necessary. In certain cases and depending on your condition and personal history, you may be a possible candidate for a kidney transplant.



# Preventive Care and Diabetes

## Eye Disease and Diabetes

Diabetes can cause problems with your eyes including retinopathy, cataracts, and glaucoma. Uncontrolled diabetes is the leading cause of blindness in adults.

Our eyes work very much like the film in a camera. When we see an object, the light bounces off of that object, goes through the lens of the eye and focuses an image on the retina. The retina then records the image and sends it to the brain. If there is damage to the retina, the eye is unable to send this image to the brain.

High blood sugars over a long period of time can damage delicate vessels that supply blood to the retina. The damaged vessels may leak fluid into the retina causing it to swell. If damage continues, abnormal blood vessels grow on the retina. These new blood vessels are weaker and can easily tear and bleed. This problem is called diabetic retinopathy and may lead to vision loss.

### Risk factors for developing diabetic retinopathy

- Uncontrolled blood sugar - High blood sugar can damage the fragile

blood vessels in the retina. Keeping your blood sugar average (A1C test) under 7% decreases the risk for diabetic retinopathy by 70%.

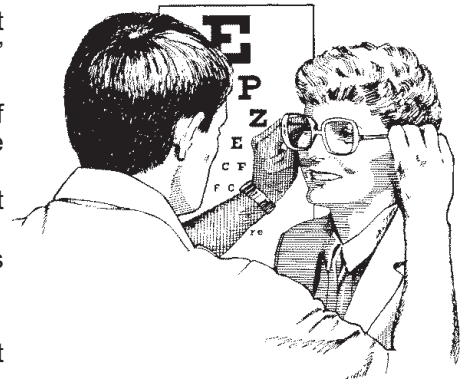
- Uncontrolled blood pressure - High blood pressure can make eye problems worse. People who keep their blood pressure under 130/80 are less likely to develop retinopathy.
- Smoking – Smoking increases blood pressure.

### Signs of retinopathy

- No early signs of retinopathy
- Later signs of retinopathy – significant damage may have already occurred.
  - Sudden changes in eyesight
  - Floating spots or “cobwebs”
  - Flashes of light
  - Partial vision or a narrow field of vision; unable to see things at the side
  - Blurred or distorted vision that does not go away
  - Pain or pressure in your eyes
  - Dark spots or blotches
  - “Halos” or rings
  - Straight lines do not look straight

### Steps to avoid retinopathy

- Keep blood sugars in good control.
- Keep blood pressure in good control.
- Keep blood cholesterol in good control.
- Do not smoke.
- Have an annual dilated eye exam. Only ophthalmologists and optometrists can detect the signs of retinopathy. Tell your health care provider about any changes in your vision. Early detection and treatment may prevent development of retinopathy.
- Protect your eyes from injury.



## Oral Care and Diabetes

Diabetes can increase your risk for gum disease, infections and tooth decay. By paying attention to your mouth, you can help keep your smile healthy.

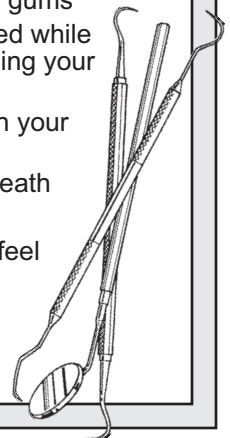
### Diabetes increases your risk for problems with oral health due to:

- Increased Plaque: Plaque is the build-up of hard deposits on your teeth and is the main reason for gum infection. High blood sugars increase dehydration making less saliva to help wash away the plaque. Plaque gives gum disease a head start.
- Elevated Blood Sugars: Having high blood sugars increases the sugar in your mouth. The high sugar level can increase your chance of infection.
- Decreased Circulation (blood flow): The tiny blood vessels in your gums can be damaged by high blood sugars. This damage will cause the blood vessels to be narrower and have less blood flow to the gums, which can decrease supply of nutrition and prevent healing of your gums.

### Monitor your oral health routinely and watch for the following problems:

Keeping your diabetes in good control can help to protect your oral health.

- Red or swollen gums
- Your gums bleed while eating or brushing your teeth
- Pain or sores in your mouth
- Chronic bad breath
- Loose teeth
- Your dentures feel loose or uncomfortable
- White patches on your gums





# Foot Care

# and Diabetes

Uncontrolled diabetes is the leading cause of amputations in adults. With simple, good foot care, you can decrease your chances of foot problems. Having high blood sugar can cause damage to your nerves and blood vessels. High blood sugars help bacteria grow which can increase the chances of infection. Most leg, foot or toe amputations begin with an injury.

## Nerve Damage (Neuropathy)

Nerve damage decreases the feeling in the feet, toes, lower legs, even in the hands and fingers, which may result in lack of awareness of injuries. It is important to know when your feet are hurt, so that you can treat the problem. Nerve damage also makes the skin very dry, leading to cracks and cuts, creating an opening for infections. Nerve damage can also lead to foot deformities.

## Damage to Blood Vessels (Atherosclerosis)

High blood sugars, high blood cholesterol levels and smoking all work to narrow and harden the blood vessels. Narrow blood vessels decrease circulation. Decreased blood flow can lead to open sores, slow healing and an increased chance for infection. It is very difficult to heal an infection in the foot if there is not enough blood flow to bring nutrients and antibiotics.

## Signs of nerve damage

- Hot feet or cold feet for no apparent reason
- Feelings of a bug or spider crawling on legs and or feet
- Feelings of walking on rocks or rough surfaces
- Numbness or decrease in sensation

- Tingling, prickly sensations
- Dry, peeling skin
- Sharp stabbing pains
- Extra sensitive feet

## Signs of decreased blood flow

- Pain in the calves when walking, especially at a brisk pace or up a hill (stopping to rest usually improves the pain)
- A bluish or white color to the skin
- Cold, shiny skin
- Loss of hair on the legs or feet
- Thick, brittle toenails

## Signs of infection

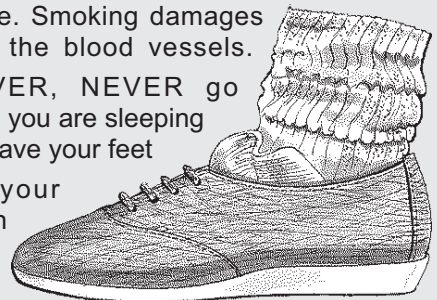
- A white or yellowish drainage from a wound or sore
- May or may not have pain at the site
- Slow healing
- Redness, heat, swelling

## Foot care

- Maintain good blood sugar control.
- Check your feet every day. Check the top, bottom, back of the heel, and between the toes. Look for dry feet, sores, blisters, corns, calluses, scratches, color changes, cracks, swelling or sores. Feel your feet for warm or cold spots. Notify your health care provider if you notice a problem.
- Keep your feet clean and dry them well with a soft towel. Put a thin coat of lotion on your feet after drying. Choose one that does not have perfume or alcohol in it so that it will not dry out your skin. DO NOT put lotion between your toes. The extra moisture can lead to infection.
- Avoid cutting toenails too short or too deep into the corners, leave about 1/8 inch of white showing.
- Wear shoes and socks that will protect your feet from injury. Avoid open-toed shoes or sandals for long periods of time. Check the inside of the shoes and socks for rough seams /edges that may rub a blister.
- Check inside your shoes for foreign objects before

wearing them. If you have any numbness, you may not feel anything in your shoe.

- Keep the blood flowing to your feet by putting your feet up when sitting, wiggling your toes and moving your ankles up and down for 5 minutes several times a day.
- DO NOT soak your feet. This dries the skin, making them prone to injury.
- DO NOT use electric blankets, heating pads or hot water bottles. You can burn your feet without realizing it. The best way to warm your feet is with warm socks.
- DO NOT smoke. Smoking damages and constricts the blood vessels.
- NEVER, NEVER, NEVER go barefoot, unless you are sleeping or bathing. Have your feet checked by your doctor at each routine visit.



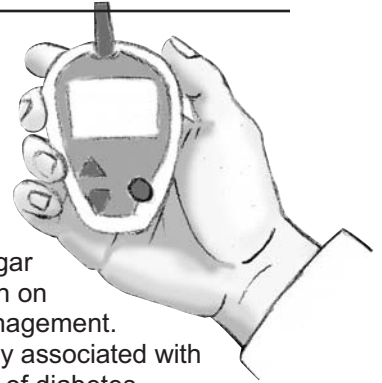


# What Should My Blood Sugar Be?

## What Should My Blood Sugars Be?

There are two ways to evaluate if your diabetes is in control.

1. Self-Monitoring Blood Glucose (SMBG) -Testing your own blood sugar at home.
  - Helps your doctor to accurately adjust your diabetes medications.
  - Helps you to see the effects of meals, exercise, and medications on your blood sugar.
  - Helps you to monitor the effects of illness, infection, surgery or stress on you blood sugar.
  - Helps you to catch low blood sugar.
2. Hemoglobin A1C test (A1C)
  - This test is performed in the laboratory or doctor’s office.
  - A1C test gives a 3-month average of your blood sugar level, provides information on your overall diabetes management.
  - An elevated A1C is closely associated with developing complications of diabetes.
  - The A1C test (3 month average) should be less than 7%.



### Blood Sugar Goals

The main goal of diabetes management is to keep blood sugar levels close to normal range. Your doctor may set different goals for your blood sugar. Talk with your doctor to set your blood sugar goals.

	Recommended	Acceptable Range
Before meals	<110	70 - 120
2 hour after meals	<140	<180
Before bed	<140	100 - 150
A1C test	<6.5	<7.0

### Comparing Blood Glucose With HgA1C

Average Glucose		HgA1C %
101	Excellent	5%
135		6%
170	Good	7%
205		8%
240	Fair	9%
275		10%
310	Poor	11%
345		12%

## How often should I check my blood sugar?

Talk to your doctor about specific times he/she might want you to check your blood sugar. Some general guidelines are:

If you are not on any medication for diabetes	Check 3 to 7 times weekly, at various times of the day*
If you are taking pills for diabetes	Check at least one time daily, preferably 2 times daily*
If you are taking insulin injections	Check at least 2 times daily*

\* Timing of self-monitoring is best decided on an individual basis; discuss with your physician or health educator.

## How do I get more test strips?

- Contact your primary care provider for your diabetes supplies. Health Education Department is **UNABLE** to write prescriptions or order supplies through the medical suppliers.
- Senior insurance plans usually use a medical supplier to dispense test strips. These arrangements **MUST** be made through your primary care provider.

## Meter Problems?

If you have problems with your meter, please refer to the “800” on the back of your meter, a 24-hour, multilingual service.



# Where can I get More information?

Websites	Phone numbers
American Diabetes Association <a href="http://www.diabetes.org">www.diabetes.org</a>	800 342-2383
American Association of Diabetes Educators <a href="http://www.diabeteseducator.org">www.diabeteseducator.org</a>	800 338-3633
American Dietetic Association <a href="http://www.eatright.org">www.eatright.org</a>	800 366-1655
California Dietetics Association <a href="http://www.dietitian.org">www.dietitian.org</a>	
American Heart Association <a href="http://www.amht.org">www.amht.org</a>	800 242-1793
New Food Guide Pyramid <a href="http://www.mypyramid.org">www.mypyramid.org</a>	
American Lung Association <a href="http://www.lungusa.org">www.lungusa.org</a>	800-NO-BUTTS
National Institute of Health <a href="http://www.nih.gov">www.nih.gov</a>	
<p><b>Resource Books</b></p> <ol style="list-style-type: none"> <li>1. The Doctor's Pocket Calorie, Fat &amp; Carb Counter Allan Borushek RD</li> <li>2. The Diabetic Bible (Your All in One Guide to Living Well with Diabetes) Dana Armstrong RD; Allen Bennett King MD.</li> <li>3. Diabetes Myths, Misconceptions, and Big Fat Lies! Kris Swenson, RN, CDE; Betty Brackenridge, MS, RD, CDE.</li> </ol>	