

*A Disease Process Module:*

# **UNDERSTANDING DIABETES**

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*Developing Top-Notch CNAs, One Inservice at a Time*

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## A Disease Process Module: Understanding Diabetes

### THE FACTS ABOUT DIABETES

***As a health care worker, it is very important for you to learn all you can about diabetes. Why?***

Consider these facts:

- Right now, there are 25.8 million children and adults in the United States who have diabetes, but 7 million of them remain undiagnosed.
- Even worse, there are at least 79 million people walking around with pre-diabetes. (*This is when the blood glucose levels are higher than normal but not yet high enough to be considered diabetes.*)
- By 2025, doctors say that there will be 300 million people with diabetes around the world!
- About 27% of people over age 60 have diabetes. So, if you work with the elderly, one out of every four of your clients will have diabetes.
- People with diabetes are 2 to 4 times more likely to develop heart disease or stroke than people without diabetes.
- Diabetes is the leading cause of blindness for people ages 20 to 74.
- This disease is also the leading cause of irreversible kidney disease. Every year, about 49,000 people with diabetes begin treatment for end-stage kidney disease.
- More than half of all lower limb amputations performed each year occur in people with diabetes.



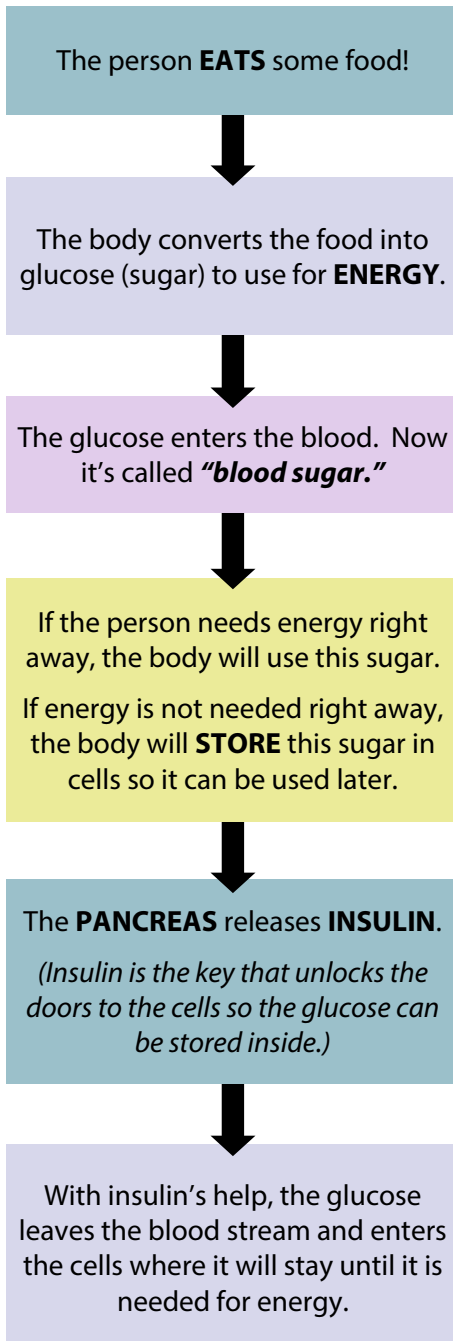
All this sounds pretty bad, doesn't it? But there is good news, too. Nearly every complication of diabetes can be prevented—especially with your help!

With good care, people with diabetes can live long, productive lives and avoid problems like blindness and amputation. The more you know about diabetes, the better you'll be able to help your diabetic clients avoid serious complications.

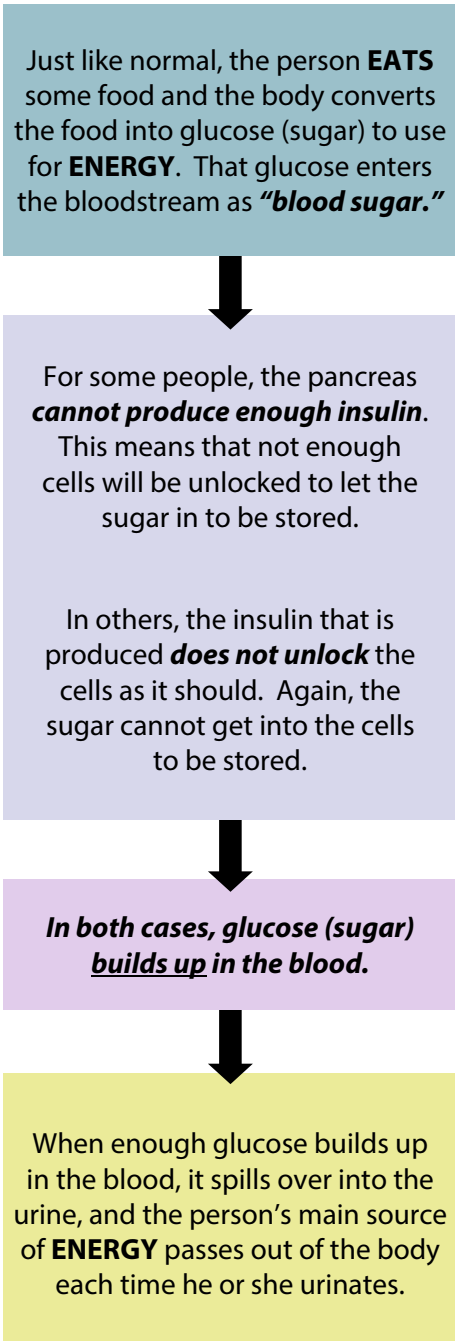
***Keep reading to learn more about this extremely common condition.***

# WHAT EXACTLY IS DIABETES?

## Normally, what happens is . . .



## When things go wrong . . .



## What's NORMAL?

*Whatever your role may be, as a caregiver it's important to know the recommended levels for blood sugar. Here are the typical normal levels:*

### BEFORE BREAKFAST

Normal blood sugar before breakfast should be between **70 mg/dl and 100 mg/dl.**

### AFTER A MEAL

After eating, blood sugar should be **less than 180 mg/dl.**

### DURING EXERCISE

During everyday activities, blood sugar should range from **100 mg/dl to 140 mg/dl.**

## WHAT'S NEW?

Grab your favorite highlighter! As you read this inservice, **highlight five things** you learn that you didn't know before. Share this new information with your co-workers!





## DO YOU KNOW?

### THE IMPORTANCE OF THE A1c TEST

Blood sugar levels can vary from day to day and hour to hour. An A1c test shows blood sugar levels over a span of several weeks. It is the best way to diagnose diabetes and identify who is at risk of getting diabetes.

The A1c test is also the best predictor of risk for stroke, heart disease and death from diabetes. But what do the numbers mean?

- A1c levels between 5.0 to 5.5 percent are considered normal.
- People with levels between 6 and 6.5 percent are nine times more likely than those at the normal range to develop diabetes or complications from diabetes.

## TYPES OF DIABETES

### TYPE 1 DIABETES

Due to a problem in the pancreas, some people's bodies **stop making insulin** completely. This is known as *Type 1 Diabetes*. (It has also been called *juvenile diabetes* because the diagnosis is usually made during childhood.) Only 5 to 10 percent of diabetics have *Type 1 Diabetes*.

Type 1 Diabetes is a **chronic disease** for which there currently is no cure. However, symptoms can be managed with insulin shots and people with this disease can live long and healthy lives.

- The cause of Type 1 Diabetes is unknown, but doctors do know that it is an "autoimmune" disease. This means that the body is fighting against itself, causing the pancreas to stop making insulin.
- Some doctors believe that an unknown virus causes Type 1 Diabetes. But it may also be a problem passed down in families.

#### Some of the risk factors include:

- Being a child or adolescent. (The average age for developing Type 1 Diabetes is twelve.)
- Having a brother or sister (especially an identical twin) with Type 1 Diabetes.
- Being Caucasian. (*This groups develops Type 1 Diabetes more than others.*)

### GESTATIONAL DIABETES

*Gestational diabetes develops during pregnancy (gestation). Like other types of diabetes, it affects how the cells store sugar. About 2 to 4 percent of pregnant women develop gestational diabetes.*

Gestational diabetes is a **temporary form of diabetes** and usually resolves after the baby is born.

- **During the pregnancy**, Gestational diabetes can be dangerous for both the mother and the baby's health.
- **After pregnancy**, a history of gestational diabetes increases the likelihood of developing Type 2 Diabetes later in life.

#### Risk factors for Gestational Diabetes include:

- Being pregnant over the age of 30.
- Obesity.
- Family history of diabetes.
- Previous birth of a baby who weighed more than 9 pounds.
- Previous stillbirth.



## TYPES OF DIABETES—CONTINUED

On the previous page, you learned about Type 1 Diabetes and Gestational Diabetes. These two types of diabetes are rare and often not preventable. The two types of diabetes on this page, are much more common. Pre-diabetes and Type 2 are related to ***lifestyle choices*** and are usually ***preventable!***

### PRE-DIABETES

*Before people develop Type 2 Diabetes, they almost always have a condition known as Pre-diabetes. A person with Pre-diabetes has blood glucose levels that are higher than normal but not yet high enough to be considered diabetes.*

***It is estimated that 79 million American adults aged 20 and older have Pre-diabetes.***

It's impossible to know the exact number of people walking around with Pre-diabetes because there are often no clear symptoms.

#### **Symptoms to watch for include:**

- Increased thirst
- Frequent urination
- Fatigue
- Blurred vision

#### **Risk factors that increase the likelihood of developing Pre-diabetes and Type 2 diabetes include:**

- Obesity, or body mass index above 25.
- Inactivity.
- Age 45 or older.
- Family history of type 2 diabetes.
- African-American, Hispanic, American Indian, Asian-American or a Pacific Islander.
- History of Gestational Diabetes.

#### ***The good news is . . .***

People who have been diagnosed with Pre-diabetes can reverse the course of the disease and get their blood sugar level back to normal with diet and exercise! This can keep Pre-diabetes from turning into Type 2 Diabetes.

### TYPE 2 DIABETES

*Type 2 diabetes is the most common form of diabetes. In type 2 diabetes, either the body does not produce enough insulin or the cells ignore the insulin.*

***25.8 million Americans (or 8.3% of the total population) have Type 2 Diabetes.***

Type 2 Diabetes used to be called "Adult Onset Diabetes." While increasing age does increase a person's risk, the term is no longer used because Type 2 Diabetes is on the rise in children, largely due to the epidemics of obesity and sedentary lifestyle.

#### **The symptoms of Type 2 Diabetes include:**

- Frequent urination, especially at night.
- Extreme thirst unrelated to exercise or weather.
- Feeling hungry even after eating a meal.
- Losing weight rapidly or suddenly for no reason.
- Sudden vision changes, such as blurry vision.
- Tiredness, especially after meals.
- Irritability.
- Very dry, itchy skin.
- Frequent yeast infections (for females).
- Sexual impotence (for males).
- Sores that are slow to heal.
- More skin, gum or bladder infections than usual.
- Tingling or numbness in the hands or feet.
- Skin changes on the neck, armpit and groin with the skin turning velvety and dark.

#### ***If left untreated, the symptoms of diabetes can become dramatically worse, including:***

- Coma.
- Breath that smells like nail-polish remover.
- Deep 'sighing' breathing.

## IS IT TOO HIGH OR TOO LOW?

**Even though diabetes is characterized by having too much sugar in the blood, people who have diabetes have to worry about having blood sugar that is too high AND blood sugar that is too low.**

	<b><u>HYPERGLYCEMIA</u></b>	<b><u>HYPOGLYCEMIA</u></b>
<b>WHAT IS IT &amp; WHY DOES IT HAPPEN?</b>	<p><b>Hyperglycemia</b> is the medical term for <b>high blood sugar</b> (&gt;180mg/dl). It is the major cause of complications among people with diabetes.</p> <p><b>High blood sugar can occur when diabetics:</b></p> <ul style="list-style-type: none"> <li>• Get off schedule with their insulin injections or diabetes medication.</li> <li>• Eat more food than normal or eat foods high in sugar.</li> <li>• Feel stressed out.</li> <li>• Undergo surgery.</li> <li>• Suffer from an infection or illness.</li> </ul> <p>The onset of <b>high</b> blood sugar is usually <b>slow</b>. It can take from a few hours to a few days to develop—depending on the cause.</p>	<p><b>Hypoglycemia</b> is the medical term for <b>low blood sugar</b> (&lt;70mg/dl).</p> <p>People who take <b>insulin</b> are more likely to suffer from hypoglycemia than people who use pills or diet to manage their condition.</p> <p><b>A sudden drop in blood sugar may be due to:</b></p> <ul style="list-style-type: none"> <li>• An illness or infection,</li> <li>• Too much diabetes medication,</li> <li>• Skipping meals or snacks,</li> <li>• Consuming alcoholic beverages, or</li> <li>• Getting more exercise than usual.</li> </ul> <p><b>Low</b> blood sugar usually develops fairly <b>quickly</b>, sometimes within just a few minutes.</p>
<b>SYMPTOMS</b>	<p>There are many warning signs that a client is developing high blood sugar, but some are so subtle that they go unnoticed. Be prepared to watch for all of these symptoms of hyperglycemia:</p> <p>Fatigue Excessive thirst, hunger Headache</p> <p>Dry mouth and skin Blurred vision</p>	<p>As the body reacts to a sudden drop in blood sugar levels, a number of symptoms may occur. Watch your diabetic clients for these signs of hypoglycemia:</p> <p>Weakness Drowsiness Hunger Dizziness</p> <p>Pale, clammy skin Sweating Irritability</p>
<b>COMPLICATIONS</b>	<p>Untreated high blood sugar can lead to a <b>“diabetic coma.”</b> This life threatening condition occurs when the body does not have enough insulin.</p> <p><b>Get immediate help if you notice these symptoms:</b></p> <ul style="list-style-type: none"> <li>• Dry mouth</li> <li>• Nausea and/or vomiting</li> <li>• Shortness of breath</li> </ul> <p>High blood sugar can lead to nerve damage, kidney disease, damaged blood vessels, and eye disorders if not treated.</p>	<p>Untreated low blood sugar can lead to a life threatening condition known as <b>“insulin shock”</b>.</p> <p><b>Get immediate help if you notice:</b></p> <ul style="list-style-type: none"> <li>• Severe headache</li> <li>• Continued symptoms of hypoglycemia after eating</li> <li>• Seizures</li> <li>• Loss of consciousness</li> </ul> <p><b>IMPORTANT:</b> Low blood sugar may occur at night, when the person is asleep. <b>GET IMMEDIATE HELP</b> if you ever have trouble waking up a diabetic client.</p>

# COMMON COMPLICATIONS

## HEART DISEASE AND STROKE

Heart disease and strokes are among the leading causes of death in the United States, and up to 20 percent of those deaths are related to Type 2 Diabetes and Pre-diabetes.

The good news is that deaths related to heart disease and stroke dropped by 40 percent in people with diabetes over the past decade. Researchers believe that better management of diabetes and some healthy lifestyle changes contributed to the decline.

***Here's how you can help your diabetic clients reduce their risk for heart disease and stroke:***

- Assist them to maintain a healthy weight. If they are trying to lose weight, praise them for losing even one pound!
- Make sure your clients get some kind of exercise.
- If you prepare meals for your clients, be sure to follow the diabetic diet prescribed by the doctor. See page 11 for more info on the diabetic diet.
- Check your clients' blood pressure, if assigned, and report any abnormal results. (High blood pressure forces the heart to work harder, increasing the risk of heart disease and stroke.)
- Report chest pain, shortness of breath, swollen ankles, weakness or numbness, confusion or severe headache.

## KIDNEY DISEASE

Kidneys are the filters that help eliminate waste products from the body. High levels of blood sugar make the kidneys work much harder to do this job. After years of hard work, the "filters" start to leak and protein is lost in the urine.

Not everyone with diabetes will develop kidney disease. Factors like genetics, blood sugar control, and blood pressure control can decrease the likelihood of developing kidney disease.

***To help your clients prevent problems with kidney disease, follow these tips:***

- Help diabetics keep blood sugar in their target ranges. Tight blood sugar control reduces the risk of kidney disease by one third.
- Watch for and report any signs of a urinary tract infection (burning and pain when urinating; bloody or cloudy urine).
- Monitor and report any increase in blood pressure. Even a mild rise can quickly make kidney disease worsen.
- Be sure to report any fluid buildup (edema), tiredness or increased blood pressure to your supervisor.



## THINK ABOUT IT!

### HOW DOES SMOKING AFFECT BLOOD SUGAR?

Smoking is a health hazard for anyone, but for people with diabetes or a high risk of developing the disease, smoking can make the problem worse.

Diabetics who smoke have higher blood sugar levels, making their disease more difficult to control and putting them at greater risk of developing serious complications such as blindness, nerve damage, kidney failure and heart problems.

Doctors always knew smoking made diabetes worse, but now they know why. It's the nicotine.

Nicotine in the blood raises levels of hemoglobin A1c (HbA1c) by as much as 34%.

***Do any of your diabetic clients smoke? If so, what can you do today to help them quit?***

## COMMON COMPLICATIONS—CONT.

### DIABETIC NEUROPATHY

**High blood sugar can injure nerve fibers and cause a condition known as diabetic neuropathy (pronounced noo-rop-a-thee). Neuropathy can damage any nerve, but most often damages nerves in legs and feet and causes:**

- Numbness or decreased ability to feel pain or changes in temperature.
- Tingling, burning, or a sharp, jabbing pain that may be worse at night.
- Pain when walking.

There is no cure for diabetic neuropathy, but you can help your clients prevent and/or manage the symptoms. Here's how:

- Like all complication of diabetes, the best defense is to help you client keep his or her blood sugar under control.
- Inspect and clean your client's feet every day. Wounds may go unnoticed if the pain sensation is dulled. This can lead to infections or other complications.
- A regular warm bath can boost blood flow to the legs and feet and provides some relief from mild nerve pain.



### WOUNDS THAT ARE SLOW TO HEAL

**Diabetes can cause poor circulation. Without good blood flow, wound healing can be slow and wounds can worsen rapidly. To help your clients prevent problems with their skin, follow these tips:**

- Check your clients daily for cuts and irritated areas. Remember that most diabetics heal very slowly, so the best thing is to catch cuts and scrapes early—before they have a chance to get infected.
- Avoid very hot baths or showers—they dry the skin, making it more vulnerable to infections.

- After bathing, make sure to dry skin well, especially between the toes and other places where skin touches skin.
- Discourage your clients from scratching their skin.
- Avoid using electric blankets or heating pads. Some diabetics have problems feeling hot and cold temperatures, so they might leave a heating pad on too long and get burned.

### AMPUTATIONS

**Every year, nearly 100,000 people lose a leg due to their diabetes. To help your diabetic clients prevent problems with their feet and legs, remember these tips:**

- Make sure your clients don't step into bath water that's too hot. (They might not be able to tell.)
  - Help your clients dry their feet well, especially between the toes. Apply lotion to the feet—but *not* in between the toes since it would stay too moist.
  - It's common for diabetics to get open sores on the bottoms of their feet and on the top of the big toe. Be sure to check these areas.
- Have your clients wear clean cotton socks. Many diabetics find that wearing clean socks to bed helps keep their feet warm.
- Encourage diabetic clients to wear shoes whenever they are out of bed. This keeps them from foot injuries (like stubbing their toes). Make sure the shoes fit properly—that they aren't too tight and don't rub.
- Discourage your diabetic clients from wearing tight garters and from sitting with their legs crossed. This reduces the blood flow to the feet.
- Encourage clients to exercise their feet and ankles. If they are unable to do much walking, try range of motion exercises.
- Discourage smoking! Remember that most amputees are smokers.



## EVEN MORE COMPLICATIONS

### DIABETIC RETINOPATHY

Nearly half of all diabetics in the U.S. develop some degree of diabetic eye disease, including double vision, cataracts, and diabetic retinopathy.



Diabetic retinopathy is a serious problem. It develops after diabetes weakens the tiny blood vessels in the eye. People who have had diabetes for at least twenty years have a 90% chance of having retinopathy.

If left untreated, retinopathy can cause blindness. To help your diabetic clients prevent blindness, keep these tips in mind:

- Encourage your clients to wear any glasses or contacts that have been prescribed for them. (If they don't, they might not notice when their vision is changing.)
- Report any changes you notice in your clients' vision, especially if they complain of blurred vision, seeing "spots", seeing "double", or of having pain in one or both eyes.
- Try to help your clients quit smoking!

### GUM DISEASE

Nearly one-third of all diabetics have severe gum disease. To help your diabetic clients prevent gum disease, remember these tips:

- Provide complete mouth care to clients who can't do it themselves. Be sure to brush the tongue, too, and don't forget to floss the teeth.
- For clients who do their own mouth care, be sure to remind them to take care of their teeth and gums every day—especially after meals.
- Report any mouth problems like soreness, bleeding, pus, gums that pull away from the teeth, red swollen gums, poorly fitting denture, or white patches on the gums, tongue or roof of mouth.



# THINK ABOUT IT!

***There are even more problems that can develop from diabetes including nervous system disease and sexual dysfunction.***

But, there is some good news, too:

- By keeping blood sugar levels between 70 and 120 mg/dl, diabetics can reduce their risk of heart disease, nerve damage, vision and kidney problems.
- Diabetics who receive thorough foot care (including regular examinations of their feet by a physician) can reduce their risk of amputation by more than 50%.
- Regular eye exams and prompt treatment of problems can reduce a diabetic's risk for blindness by up to 90%.

***Most complications from diabetes are preventable, and you play an important role in helping your clients stay as healthy as possible!***

# HOW IS DIABETES TREATED?

The American Diabetes Association (ADA) recently released a new set of guidelines for doctors to follow when considering the treatment options for their clients with **Type 2 Diabetes**. The guidelines are as follows:

1. **Diet, exercise, and education must be the foundation of the treatment program.** Drugs won't help much if a diabetic client doesn't eat right, exercise and stay at a healthy weight. Most people have some ability to control their blood sugar with diet and exercise, but it remains a personal lifestyle choice.
2. **Use of metformin as the optimal first-line drug.** Metformin is an oral drug that decreases the amount of glucose that is absorbed from food and increases the body's response to insulin.
  - Metformin comes as a liquid, a tablet, and an extended-release (long-acting) tablet to take by mouth. The liquid and the regular tablet are usually taken with meals one or two times a day. The extended-release tablet is usually taken once daily with dinner.
  - It's important to understand that medications work along with diet and exercise—**not instead of them!**
3. **If Metformin alone fails, then add an additional oral medication or an injectable insulin product.**
  - Some diabetics need to have insulin shots one or more times each day. This is to replace the insulin that their bodies are not making for themselves. Insulin can't be taken as a pill. It must be injected into the fat just under the skin.
  - There are about 30 different kinds of insulin medication. Some come from animals and some are created in labs.



## A CLOSER LOOK AT INSULIN

Insulin is described by how quickly it reacts in the body. Here are the primary types:

- **Rapid-acting insulin**, begins to work about 5 minutes after injection, and continues to work for 2 to 4 hours.
- **Regular or Short-acting insulin** starts working within 30 minutes after injection and is effective for approximately 3 to 6 hours.
- **Intermediate-acting insulin** generally reaches the bloodstream 2 to 4 hours after injection and is effective for about 12 to 18 hours.
- **Long-acting insulin** reaches the bloodstream 6 to 10 hours after injection and is usually effective for 20 to 24 hours.

## HOW OFTEN IS IT GIVEN?

If insulin injections are needed, most people start with two injections of two different types of insulin per day. Later, it may progress to three or four injections per day.

Many times, insulin prescriptions are written on a "sliding scale." That means the dose changes according to the blood sugar level at the time.

Studies have shown that three or four injections of insulin a day give the best blood glucose control and can prevent or delay the eye, kidney, and nerve damage caused by diabetes.

## HOW IS IT GIVEN?

Many people who take insulin use a **syringe**, but there are other options as well.

**Insulin Pens** are devices that look like ordinary pens but contain a cartridge of insulin and a needle tip. The insulin dose is dialed on the pen, and the insulin is injected through a needle, much like using a syringe.

**Insulin pumps** deliver insulin 24 hours a day through a catheter placed under the skin.

## CONTROLLING DIABETES WITH DIET

In the “old days”, there was a standard diabetic diet. Now, doctors know that each diabetic needs an individualized meal plan. If you prepare food for diabetic clients, be sure you know how to follow their eating plan. Ask your supervisor if you aren’t certain what your client should and shouldn’t eat.

No matter what your clients diet plan looks like, it’s important to understand that **every food causes blood sugar to go up—not just sugar**. So, if people with diabetes eat no sugar, but continue to eat a lot of fats and high calorie foods, their blood sugar will still be out of control.

Overall, a nutrition plan for people with diabetes should include from 10 to 20% protein, no more than 30% fat and the rest (50 to 60%) whole grains, fruits and vegetables.

### THE BENEFITS OF THE DIABETIC DIET:

- Sticking to a diabetic eating plan helps many people lose weight. Getting to a reasonable body weight keeps a person with diabetes from developing serious complications.
- Some people with diabetes can avoid having to take medications or insulin by following a healthy diabetic diet.
- For people who must take medication—like insulin shots—for their diabetes, eating a diabetic diet usually keeps them from having to take as much medication.

### WHAT SHOULD YOUR CLIENT EAT?

- Whole grains, including oats, brown rice and whole grain cereals and breads.
- Plenty of fresh fruits and vegetables.
- Small to medium portions of meat, poultry and fish, lentils, dried peas and beans.

- Nonfat milk.
- Foods that are baked, broiled, poached, steamed or microwaved—but not fried.
- Very small amounts of sugar and fat.

### HOW YOU CAN HELP

- Most people with diabetes can eat some sugar. The key is to only eat a little bit, once in a while. But, if a client’s blood sugar is out of control, sugary foods are not a good choice.
- People with diabetes are twice as likely to develop heart disease. This means that your diabetic clients need to be very careful about limiting the fat in their diet.
- Read food labels for signs of “hidden” sugars. Any ingredient that ends in “ose” is some kind of sugar—like fructose, glucose, and sucrose. Avoid foods with sugar listed as one of the first three ingredients.



- Checking blood sugar levels regularly is the only way for diabetics to know if they are eating properly. Follow the orders and report any abnormal results.
- Remember that every food affects the blood sugar—some foods just take longer. Here’s the deal:
  - A high fat food will cause a jump in the blood sugar in about 6 to 8 hours.
  - A food that is mostly protein will make the blood sugar rise in about 3 to 4 hours.
  - A starchy or sugary food (mostly carbohydrates) boosts the blood sugar in about 30 minutes!



## FIVE KEY POINTS!

### REVIEW WHAT YOU LEARNED!

1. Diabetes is an epidemic. There are 25.8 million children and adults in the United States have diabetes right now. Sadly, 7 million of them remain undiagnosed.
2. Only 5 to 10 percent of diabetics have Type 1 Diabetes which is genetic and usually diagnosed in childhood.
3. Type 2 diabetes is the most common form of diabetes.
4. Before people develop Type 2 Diabetes, they almost always have a condition known as Pre-diabetes. A person with Pre-diabetes has blood glucose levels that are higher than normal but not yet high enough to be considered diabetes.
5. With good care, people with diabetes can live long, productive lives and avoid problems like blindness and amputation.

# CONTROLLING DIABETES WITH EXERCISE

## *Moderate exercise is an important part of treating diabetes because it:*

- Makes muscles stronger.
- Helps keep blood sugar under control.
- Keeps blood flowing to the legs and feet to prevent problems that might lead to amputation.
- Helps the body use food and insulin better.
- Increases the pumping power of the heart.
- Decreases the appetite and chases away depression, making it easier to stick to a healthy eating plan.

## *To really help with diabetes, exercise needs to be done regularly—at least several days a week. Exercising just every once in a while doesn't do much good. Here are some exercises your client may be able to do:*

- Walking (indoor or out)
- Stretching
- Yoga or Tai Chi
- Chair exercises
- Dancing (can be done in a chair)
- Swimming
- Lifting light weights (like soup cans)

## WHAT YOU NEED TO KNOW

- Make sure you know how much physical activity is allowed for each of your clients.
- Check blood sugar levels before your client exercises. If it is:
  - **Lower than 100 mg/dL**, it is too low to exercise safely. Serve a small carbohydrate-containing snack, such as fruit or crackers before you beginning the exercise.
  - **100 to 250 mg/dL**, get going! This is a safe range.
  - **250 mg/dL (13.9 mmol/L) or higher**, postpone exercise until the blood sugar drops to the safe range
- Watch your client for signs of low blood sugar during exercise. Check blood glucose levels at least every 30 minutes during exercise.
- Stop the exercise if your client's blood sugar drops below 70 mg/dL or if he seems shaky, nervous or confused . Give a small snack to raise your client's blood sugar level, such as 1/2 cup of fruit juice.









*Developing Top-Notch CNAs, One Inservice at a Time*

*A Disease Process Module:*  
**Understanding Diabetes**

***Are you "In the Know" about diabetes? Circle the best choice or fill in your answer. Then check your answers with your supervisor!***

- 1. Diabetes is the leading cause of this problem:**
  - A. Lower limb amputation.
  - C. Stroke.
  - B. Kidney disease.
  - D. All of these.
  
- 2. Which of these is needed to help glucose enter the cells for storage?**
  - A. Sugar.
  - C. Water.
  - B. Insulin.
  - D. Fats.
  
- 3. Your client asks you if it's okay to have a piece of birthday cake at her granddaughters birthday party. You should tell her:**
  - A. It's not okay. Cake is full of sugar.
  - B. To increase her insulin dose before eating sweets.
  - C. It's okay to have a very small piece on this special occasion.
  - D. None of these are correct.
  
- 4. The best test for diagnosing diabetes is the**
  - A. A1c
  - C. Fasting glucose test.
  - B. Finger stick.
  - D. Ultrasound of the liver.
  
- 5. True or False**  
 People who take insulin are less likely to suffer from hypoglycemia (low blood sugar).
  
- 6. True or False**  
 Most people have some ability to control their blood sugar with diet and exercise.
  
- 7. True or False**  
 Tingling, burning or a sharp, jabbing pain in the legs may be a sign of diabetic retinopathy.
  
- 8. True or False**  
 Exercise helps the body use food and insulin better.
  
- 9. True or False**  
 Increased thirst and frequent urination are common symptoms of diabetes.
  
- 10. True or False**  
 Sugar is the only food that causes blood sugar to go up.

EMPLOYEE NAME  
 (Please print):

\_\_\_\_\_

DATE: \_\_\_\_\_

- ***I understand the information presented in this inservice.***
- ***I have completed this inservice and answered at least eight of the test questions correctly.***

EMPLOYEE SIGNATURE:

\_\_\_\_\_

SUPERVISOR SIGNATURE:

\_\_\_\_\_

**Inservice Credit:**

<input type="checkbox"/> Self Study	1 hour
<input type="checkbox"/> Group Study	1 hour

***File completed test in employee's personnel file.***