

#1

What Is Diabetes?



STATEMENT OF PURPOSE

This session is intended to provide basic information about the definition, pathophysiology, and treatment of diabetes.

PREREQUISITES

None.

OBJECTIVES

At the end of this session, participants will be able to:

1. identify diabetes as a chronic disorder of metabolism in which the body is unable to use food for energy, resulting in hyperglycemia;
2. state the importance of their role and personal responsibility for decision-making and self-management;
3. identify the pancreas as the organ that makes the hormone insulin;
4. define *hyperglycemia* and list the symptoms;
5. state the type of diabetes they have;
6. list several factors that may contribute to the development of diabetes;
7. state that learning about diabetes and self-management is essential for the care of diabetes and prevention of complications;
8. identify target fasting, postprandial, and A1C levels;
9. list the stages of treatment for type 2 diabetes; and
10. identify the importance of ongoing diabetes self-management education and support.

CONTENT

Describing the diabetes disease process and treatment options.

MATERIALS NEEDED

VISUALS PROVIDED

- 1-1. Pancreas
- 1-2. Normal Glucose Metabolism
- 1-3. How Insulin Works
- 1-4. Normal Blood Glucose and Insulin Levels
- 1-5. Glucose Metabolism in Diabetes
- 1-6. Natural History of Type 2 Diabetes
- 1-7. Insulin Resistance
- 1-8. Target Blood Glucose Levels

- Handouts** (one per participant)
- 1-1. Target Blood Glucose Levels

ADDITIONAL ITEMS

- Board and markers
- Video programs that provide an overview of the pathophysiology and treatment of diabetes. The National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK) has several videos available. Visit <https://www.niddk.nih.gov/health-information/professionals/> for resources or see NIDDK videos on www.youtube.com.
- Standards of Medical Care in Diabetes by the American Diabetes Association (<https://professional.diabetes.org/content-page/practice-guidelines-resources>)

METHOD OF PRESENTATION

Start by introducing yourself and explaining what you do. Ask participants to introduce themselves, say how long they have had diabetes, and how their diabetes is currently treated. Explain that the purpose of this session is to provide a basic overview of diabetes. Ask participants to identify questions they would like answered and what they would like to learn about managing their diabetes. Present material in a question-and-discussion format, using the first question as a starting point. Provide appropriate content outlined below. Ask whether participants have additional questions, and respond, repeating the process for the entire session. Use the questions in the Instructor’s Notes section to generate discussion if no questions are forthcoming after a period of silence. Keeping track of the content discussed in each session and using the Diabetes Self-Management Education Record, the Participant Follow-Up Record, or another form will help you determine whether all needed content has been discussed.

It is helpful in a group program to ask the participants to develop “ground rules” for the sessions. For example, maintain confidentiality; respect other participants; do not make judgments, provide advice, or offer “shoulds”; do not interrupt others; and turn off cell phones. Write these on the board and review before each session or when reminders are needed.

Because participants are more interested in their own diabetes than in a general discussion of diabetes, you can use their laboratory results, if available, as a starting point for this session. One option is to use the Diabetes Complications Risk Profile tool available at <http://diabetesresearch.med.umich.edu/Tools.php#risk/> or a similar form, to present their results. After giving participants time to review, ask whether they have questions related to the results. Provide the following content outline in response to their questions. Show one of the video programs, if desired.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
1. Living with diabetes	1.1 Personal definition of <i>diabetes mellitus</i> .	“How would you explain to another person what living with diabetes is like based on your experiences?”
	1.2 What questions or concerns do you have about your diabetes?	Point out the differences between textbook knowledge of diabetes (e.g., knowledge of professionals) and experiences of others with diabetes, with their <i>own</i> experiences.
2. Self-management	2.1 Caring for diabetes is different than caring for some other illnesses. You provide most of your own daily care. The choices and decisions you make each day affect both how you feel today and your long-term health.	Ask, “How is caring for diabetes different? What are some choices you make that affect your diabetes? What are some choices you make for your diabetes that affect other aspects of your life? How does your diabetes affect the lives of your family members?”
	2.2 The purpose of this education program is to give you the knowledge, skills, and confidence to accept the responsibility for your daily diabetes care. This includes making wise decisions, solving problems, making a plan, and coping with your emotions and life stresses.	Ask, “What is the difference between responsibility and accountability? Why is responsibility more appropriate for diabetes self-management than accountability?”
	2.3 Although your health professionals are experts about diabetes, you are the expert on yourself and what will work best for you.	
	2.4 It is very common for people with diabetes and their family members to have strong feelings about diabetes and its impact on their lives. The day-to-day feelings of anger, fear, frustration, guilt, and worry are called <i>diabetes-related distress</i> .	Ask, “What are your thoughts or feelings about having diabetes? What is the hardest for you about living with diabetes? How has your family handled it?” Avoid making judgments or trying to change or minimize the feelings identified.
	2.5 Caring for diabetes is not easy. It is a lot of work and can be frustrating. But you can learn how to manage your blood glucose levels and still live your life. It's not always easy, but it is worth it.	Remind participants that you and other members of their healthcare team are here to help them.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR’S NOTES
3. Pancreas and liver	3.1 Many people think that diabetes is a “sugar” problem, but it actually is an <i>insulin</i> problem. With diabetes, there is insufficient insulin production or activity (or both). Insulin is necessary to use the food we eat for energy.	Ask, “What is diabetes?” Clarify any misconceptions. <i>Diabetes</i> = running through <i>Mellitus</i> = sweet
	3.2 Insulin is made in the pancreas. The pancreas is an elongated gland located behind the stomach.	Show a picture of a pancreas or Visual 1-1, Pancreas.
	3.3 The pancreas has two functions: <ul style="list-style-type: none"> ■ Secretion of pancreatic juice that aids in digestion (exocrine function). This is done by 99% of the pancreas. ■ Secretion of hormones that control various body processes (endocrine function). 	
	3.4 Insulin is a hormone made by the beta-cells in the pancreas. Insulin regulates carbohydrate metabolism.	Only 1% of the cells in the pancreas—the islets of Langerhans—perform this job.
	3.5 Amylin is a hormone produced by the alpha-cells of the pancreas that helps insulin work better.	The incretin hormones are made in the intestines and also help insulin work better. The production of both amylin and incretins are reduced among people with diabetes.
	3.6 Glucagon is another hormone produced by the alpha-cells of the pancreas. It is released when the blood glucose level is low to keep it from going too low.	Although this concept is complex, it will help participants understand their blood glucose results, medicines, and effects of food and exercise. Glucagon causes the liver to convert stored glycogen into glucose.
	3.7 Your pancreas and liver work together to manage your blood glucose. Among its many other functions, the liver helps the body digest the food you eat. It helps break down and store glucose and the other sugars your body needs for energy.	One of the many functions of the liver is to stabilize blood glucose levels, especially during fasting.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
4. What happens when you eat (normal metabolism)?	4.1 To understand and manage diabetes, it helps to understand what happens in your body when you eat. Food is broken into simple forms by enzymes (chemicals) in the digestive system.	Some of these enzymes are produced by the pancreas. This content is fairly dense, so you will need to carefully gauge the level of interest among participants. Using real-life examples from participants, visuals, a video, or responding to questions can make it more relevant to daily diabetes care and decision-making.
	4.2 Most of the food you eat is broken down into glucose and other simple sugars.	
	4.3 Glucose is absorbed into the bloodstream to be used by cells for energy. Most of your cells need glucose to work.	Use Visual 1-2, Normal Glucose Metabolism. Some of the nonglucose simple sugar is converted to glucose by the liver.
	4.4 Blood glucose rises promptly after food is eaten. Insulin is released from the pancreas as blood glucose levels go up.	Insulin maintains euglycemia by allowing glucose to move into the cells.
	4.5 Cells have receptor sites on the outside. When insulin attaches to the receptor sites, a passageway is made and glucose goes into the cell. Insulin works like a key to opens the cells to let the glucose into the cell, like a key.	Most cells need insulin for glucose to enter. Brain, liver, and kidney cells do not; these cells receive glucose even though there is little insulin activity. Use Visual 1-3, How Insulin Works.
	4.6 Because glucose goes out of the blood and into the cells, your blood glucose levels stay in the normal range.	Ask, "What are normal blood glucose readings?" Use Visual 1-4, Normal Blood Glucose and Insulin Levels.
	4.7 Excess calories are generally converted into fat and stored. Excess glucose is stored in the liver for future use.	In normal metabolism, the blood glucose rises (usually <140 mg/dL) and returns to fasting levels 2 hours after beginning to eat.
	4.8 When your blood glucose starts to go down, your pancreas slows down how quickly and how much insulin it makes.	This role of the liver is especially important during times of fasting, such as overnight, or when energy is quickly needed, such as during exercise.
		When insulin levels drop, the liver releases some of the glucose it has stored. This keeps the blood glucose from dropping too low.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	4.9 Your liver also puts out extra glucose whenever your blood glucose goes too low.	Ask, "Have you ever had your blood glucose go up overnight? After exercise?" Point out that bedtime and morning fasting glucose readings should be close to the same range.
5. What happens when you eat when have diabetes (diabetes metabolism)?	5.1 Food is broken down in the normal way.	
	5.2 Digestive enzymes act in the normal way.	The digestive enzymes produced by the pancreas are not affected by diabetes.
	5.3 Glucose is absorbed into the bloodstream in the normal way.	
	5.4 However, the key to the cells is missing, so there is not enough insulin action.	
	5.5 Without insulin action, glucose can't get into most of your body's cells to be used for energy.	Use Visual 1-5, Glucose Metabolism in Diabetes. Liver and brain cells do not need insulin to import glucose.
	5.6 Glucose stays in the blood. When you have diabetes, you do not have enough insulin action to maintain a normal blood glucose level.	
	5.7 Blood glucose level rises, leading to <i>hyperglycemia</i> .	
	5.8 Most cells are drowning in glucose on the outside and starving for it on the inside.	
	5.9 Because insulin secretion and action are affected by diabetes, your liver may put out extra sugar even when your blood glucose is high. This can further raise the blood glucose level.	Point out that this does not mean that the liver is damaged by diabetes, just that the signals are not interpreted correctly.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	5.10 The incretin hormones are made in the intestines and help insulin to work better. These hormones stimulate the production of insulin when glucose goes up after meals, inhibit glucagon production, and slow emptying of the stomach. This effect is blunted or delayed among people with diabetes.	These are the <i>incretin hormones</i> (GLP1 and GIP).
6. Signs and symptoms of hyperglycemia	6.1 The symptoms are caused by high glucose and by your body's efforts to get rid of the extra sugar.	Ask, "What symptoms did you have before you found out you had diabetes?" Relate these symptoms to the pathology of hyperglycemia. <i>hyper</i> = high <i>glyc</i> = sugar <i>emia</i> = blood
	6.2 The kidneys work as filters to remove waste products from the blood, including excess glucose. The higher the glucose in the blood, the more glucose will appear in the urine, and the harder the kidneys have to work.	Glucose leaving the body in the urine is called <i>glycosuria</i> . The renal threshold is the level at which glycosuria develops. In some people, hyperglycemia must be extreme before glycosuria develops.
	6.3 This leads to extra urine production. Your body must make more urine to get rid of the extra glucose. This is called <i>polyuria</i> .	High levels of glucose in the urine increase urination correspondingly, as your body dilutes the sugar.
	6.4 When you urinate a lot, your body needs more water. This increases your thirst. Increased thirst is called <i>polydipsia</i> and is due to polyuria.	Getting up often during the night to urinate is common.
	6.5 <i>Polyphagia</i> (increased hunger) is due to starvation of the cells because glucose stays in the blood or goes out in urine and is not available to be used by the cells.	Loss of glucose through the urine means loss of calories and starvation of the cells in your body. Other factors, such as anorexia, may contribute to weight loss.
	6.6 Dehydration, weight loss, weakness, and fatigue also happen.	

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	6.7 Blurred vision results from hyperglycemia. Sugar accumulates in the lens of the eye, causing the lens to swell and distort vision. As blood glucose returns to normal, the lens usually recovers its shape, and vision changes again.	Participants need to wait 6–7 weeks after blood glucose levels are in the target range before undergoing vision testing for glasses. Reassure participants that these changes are not related to blindness (retinopathy) from diabetes.
	6.8 Another symptom of high blood glucose is itching, especially in the genital area.	Itching can be caused by dry skin from dehydration, or an overgrowth of microorganisms.
	6.9 Slow or confused thinking can occur if hyperglycemia and dehydration are pronounced; coma and stroke can result.	The brain cannot function well if fluids and electrolytes are unbalanced.
	6.10 Delayed healing and an increased number of infections can also occur.	Vaginal and bladder infections are common examples.
	6.11 These symptoms come on acutely in type 1 diabetes, but more slowly in type 2 diabetes. Unfortunately, many people blame these symptoms to aging and ignore them.	Point out that people have type 2 diabetes for 7 years on average before diagnosis. Sadly, it is not uncommon to be diagnosed after a complication develops.
7. Methods used to diagnose diabetes	7.1 One measurement is called the <i>fasting plasma glucose</i> . A blood sample is taken after at least an 8-hour fast, usually before breakfast. A normal result is 70–99 mg/dL. Values of 126 mg/dL or higher are diagnostic of diabetes.	Ask, “How was your diabetes diagnosed?” Discuss only relevant sections based on participants’ experiences and questions. The criteria used to diagnose diabetes are two abnormal results from one sample (e.g., fasting blood and A1C from the same sample).
	7.2 Another is called the <i>random plasma glucose</i> . A nonfasting plasma glucose level of 200 mg/dL or higher along with classic symptoms is diagnostic of diabetes.	In the absence of unequivocal hyperglycemia with any of the diagnostic methods, the results must be confirmed on a subsequent day.
	7.3 A1C readings may be used to diagnose diabetes. Diabetes is diagnosed when the A1C level is 6.5% or higher.	

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	<p>7.4 Another measurement is the <i>oral glucose tolerance test</i> (OGTT). After an 8- to 12-hour fast, a blood sample is taken. A glucose dose is then given, and blood samples are taken every 30–60 minutes for 1–5 hours. This is done if there is a question of prediabetes or diabetes. A 2-hour level of 200 mg/dL or higher is diagnostic of diabetes.</p>	<p>Discuss only if participants have had this or are interested. A 75-gram glucose load or its equivalent is recommended.</p>
	<p>7.5 A 2-hour postprandial plasma glucose measurement may be used for diagnosis. A high-carbohydrate meal may be given before the blood is drawn. This method is more commonly used among children suspected of having type 2 diabetes.</p>	<p>This is not generally done for children presenting with symptoms of type 1 diabetes.</p>
	<p>7.6 Prediabetes is defined as a fasting plasma glucose value 100–126 mg/dL or a 2-hour plasma glucose value of 140–199 mg/dL or an A1C value of 5.7–6.4%.</p>	<p>Show Visual 1-6, Natural History of Type 2 Diabetes. “Were you ever told you had prediabetes?” Contrast this with the old designation of borderline diabetes. Review the results of the Diabetes Prevention Program (DPP), which indicated that modest weight loss (5–7%) and moderate exercise (e.g., walking 150 minutes/week) were shown to significantly reduce the risk for and potentially delay the onset of type 2 diabetes. Additional educational materials and curricula based on the DPP are available at https://www.cdc.gov/diabetes/prevention/index.html.</p> <p>Inform participants about certified prevention programs based on the DPP in your area, for example, at the local Y, wellness center or clinic, and online or technology-based prevention programs.</p>

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
<p>10. Factors contributing to the development of diabetes</p>	<p>10.1 The exact cause of diabetes is unknown. Heredity is a factor in both types of diabetes, but it is more often associated with type 2 diabetes. If one parent has type 1 diabetes, the risk is 1–6% of having a child with type 1 diabetes.</p> <p>If one parent has type 2 diabetes, the risk is 10–15% that their children will have diabetes as adults. The risks are higher for both types if both parents have diabetes.</p>	<p>Ask, “What do you think caused your diabetes?” You don’t catch diabetes or get it from eating sweets. Studies show that if one identical twin gets type 1 diabetes, the other doesn’t always (25–50%). This indicates that something in the environment has brought out the diabetes in one twin. If one twin gets type 2 diabetes, the other usually does (60–75%). Risks for both types decrease when parents are older at the time of diagnosis.</p> <p>Men with type 1 diabetes have a 6% chance of having a child with diabetes. If the mother has diabetes and the child is born before she is 25 years old, the risk is 4%. The risk is 1% if the child is born after the mother is 25 years old.</p>
	<p>10.2 Although genetics are a large factor for type 2 diabetes, social determinants, health behaviors, medical care availability and care received, and environmental factors also make strong contributions.</p>	<p>Social determinants are the nonmedical factors that affect health. These include race, age, economic status, community, and living environment.</p> <p>Stress the importance of taking steps to prevent type 2 diabetes among their children and grandchildren.</p>
	<p>10.3 Ethnic background and other social determinants contribute (Native Americans, Hispanic Americans, and Asian Americans have a higher incidence of type 2 diabetes).</p>	<p>Additional information is included in the American Diabetes Association Standards of Medical Care in Diabetes: Improving Care and Promoting Health in Populations (https://care.diabetesjournals.org).</p>
	<p>10.4 Age is a factor (incidence of diabetes increases with age). Loss of muscle mass because of aging or a sedentary lifestyle can contribute to insulin resistance and diabetes.</p>	

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	10.5 Stresses, both emotional and physical, may precipitate or aggravate type 1 and type 2 diabetes: <ul style="list-style-type: none"> ■ pregnancy (gestational diabetes) illness or surgery ■ medicines such as glucosteroids (e.g., prednisone) 	Gestational diabetes may go away after the pregnancy, but it may reappear as type 2 diabetes later in life. Evidence is increasing that depression may precede diabetes.
	10.6 Because of insulin resistance, becoming overweight or obese is a factor in developing type 2 diabetes.	More than 80% of people are overweight or obese at the time of diagnosis. Use Visual 1-7, Insulin Resistance. Note the larger body cell with fewer receptor sites.
	10.7 Injury to the pancreas (infection, surgery, tumor, or trauma) may lead to diabetes.	People with diabetes as a result of a pancreatectomy are considered to have type 1 diabetes.
	10.8 Type 1 diabetes is generally thought to be an autoimmune illness. In combination with hereditary factors, other factors that can predispose the development of type 1 diabetes are: <ul style="list-style-type: none"> ■ immunologic factors (antibodies against the islet cells that produce insulin) ■ viral factors (post-mumps, rubella, or coxsackie) 	
11. Treatment of diabetes	11.1 Diabetes is a serious, lifelong condition. It is not curable, but it is treatable and manageable. You cannot “control diabetes” or even your blood glucose completely, but you can learn to how to manage it.	Stress the seriousness of both types of diabetes.
	11.2 You need to take your diabetes seriously because there are things you can do to live longer, healthier, and more peacefully with diabetes.	The latest Standards of Medical Care in Diabetes by the American Diabetes Association and other organizations emphasize person-centered care and personal targets.
	11.3 According to the American Diabetes Association, the goals of treatment and care are to prevent complications and optimize quality of life.	

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR’S NOTES
	11.4 Most (95–99%) of the daily care of diabetes is <i>self</i> -management. It is a big responsibility and you make many decisions each day that affect your blood glucose levels and long-term outcomes.	Stress the importance of the role of the person with diabetes as a care provider.
	11.5 This program is an important first step. However, most people with diabetes and their families do better if they continue to receive ongoing support and education as they go through life with diabetes.	Provide information about local resources for ongoing support.
	11.6 Most problems in diabetes are linked to blood glucose levels that are too high or too low. One of the most important things you can do is to learn about diabetes and how to manage your blood glucose and to listen to your body.	
	11.7 The first step is to choose your personal blood glucose targets. Treatment, including self-management, is then based on working toward this target. The management plan needs to work for both your diabetes and your daily life.	Keeping blood glucose near normal helps decrease symptoms and reduces the risks for the acute and long-term complications of diabetes. Emphasize that if the plan works to manage diabetes but not in your daily life, then the plan needs to change.
	11.8 A reasonable A1C for many adults with diabetes is 7.0% or lower. You and your healthcare provider need to work together to set your blood glucose, blood pressure, and other targets. Considerations include personal preferences, resources and support system, acute and long-term diabetes complications, and other health and personal concerns.	Show Visual 1-8, Target Blood Glucose Levels. Distribute Handout 1-1, Target Blood Glucose Levels. It is recommended that targets be made in collaboration with participants and family members based on personal preferences, prognosis, life expectancy, and comorbidities. Additional information is available in Outline 9, <i>Monitoring Your Blood Glucose</i> (p. 249).

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	11.9 The treatment of type 1 diabetes always requires insulin. The intensity (number of injections each day, meal plan, and exercise) of the treatment is based on your personal blood glucose targets and other goals.	Ask, "How is your diabetes treated? How has your treatment changed since you were diagnosed?"
	11.10 The treatment of type 2 diabetes is usually done in stages or phases—starting with meal planning and exercise, then oral medicines (if needed), and then injectables or insulin, alone or with oral medicines. Each stage generally is tried for 3–6 months. Effectiveness is evaluated based on your blood glucose and other targets and your personal goals.	Stress that they may stay in one phase or stage for a while, but that they should not stay with a form of treatment that is not effective. Remind participants that treatment failures are not personal failures and that progression of therapy does not mean that their diabetes has "progressed" or worsened. Your A1C is not a measure of personal success or your behavior.
	11.11 Using oral medicines from the time of diagnosis is more and more common. Metformin is often the drug of first choice based on practice standards. Over time, insulin is needed by many people with type 2 diabetes as part of the natural course of diabetes.	Any new treatment needs to be evaluated after 3 months. If it is not working, then a different treatment is needed.
	11.12 A meal plan to manage your glucose distributes carbohydrates throughout the day to smooth out blood glucose levels and balance with your diabetes medicines.	It is recommended that all participants create a diabetes meal plan in collaboration with a registered dietitian nutritionist (RDN).
	11.13 A meal plan for weight loss lowers calorie intake while still managing glucose levels and preventing the acute and long-term complications of diabetes	Even a modest amount of weight loss (5–10%) can lower blood glucose significantly for two reasons: (1) receptor sites return, making the person more sensitive to his/her own available insulin; (2) there is less metabolic demand on the body.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
	<p>11.14 Exercise usually lowers blood glucose because exercise increases the rate of burning blood glucose (metabolism). It also provides a sense of well-being, may improve memory and thinking, aids the vascular system, and helps in weight reduction and maintenance.</p>	<p>Ask, "What are your personal reasons for managing your blood glucose? Meal planning? Exercise? Stress management? Quality of life? Why are those reasons important to you?"</p>
	<p>11.15 Medicine involves oral agents (which are not insulin) and other injectables or insulin.</p>	<p>Point out that it will be easier to manage your diabetes if you exercise and use a meal plan along with taking your medicines.</p>
	<p>11.16 Caring for diabetes often involves making changes in your lifestyle and health behaviors.</p>	<p>Ask, "What changes have you made to care for your diabetes? What has helped or hindered your efforts?"</p>
	<p>11.17 It is unrealistic to think that you can make all the changes at one time. Many people find setting long-term blood glucose and other goals overwhelming. Instead, choosing short-term goals and actions can provide helpful and realistic steps toward achieving long-term goals.</p>	<p>Ask participants to select a long-term goal related to diabetes and an appropriate action step toward goals that can be achieved by the next class. Examples: If the long-term goal is to lose 30 lb, the action step could be to eat 1 1/2 sandwiches for lunch instead of 2. If the long-term goal is a lower A1C, then the action step may be to walk three times a week for 20 minutes. The purpose of this is to give participants a chance to experiment and learn how to make behavioral changes.</p>
	<p>11.18 Reward yourself when you accomplish your short-term goals.</p>	<p>Point out that it is more effective to reward effort than results or outcomes.</p>
	<p>11.19 Choose one thing you will do to care for your diabetes.</p>	<p>Close the session by asking participants to choose one I-SMART or other action step they will take before the next session.</p>



SKILLS CHECKLIST

None.

EVALUATION PLAN

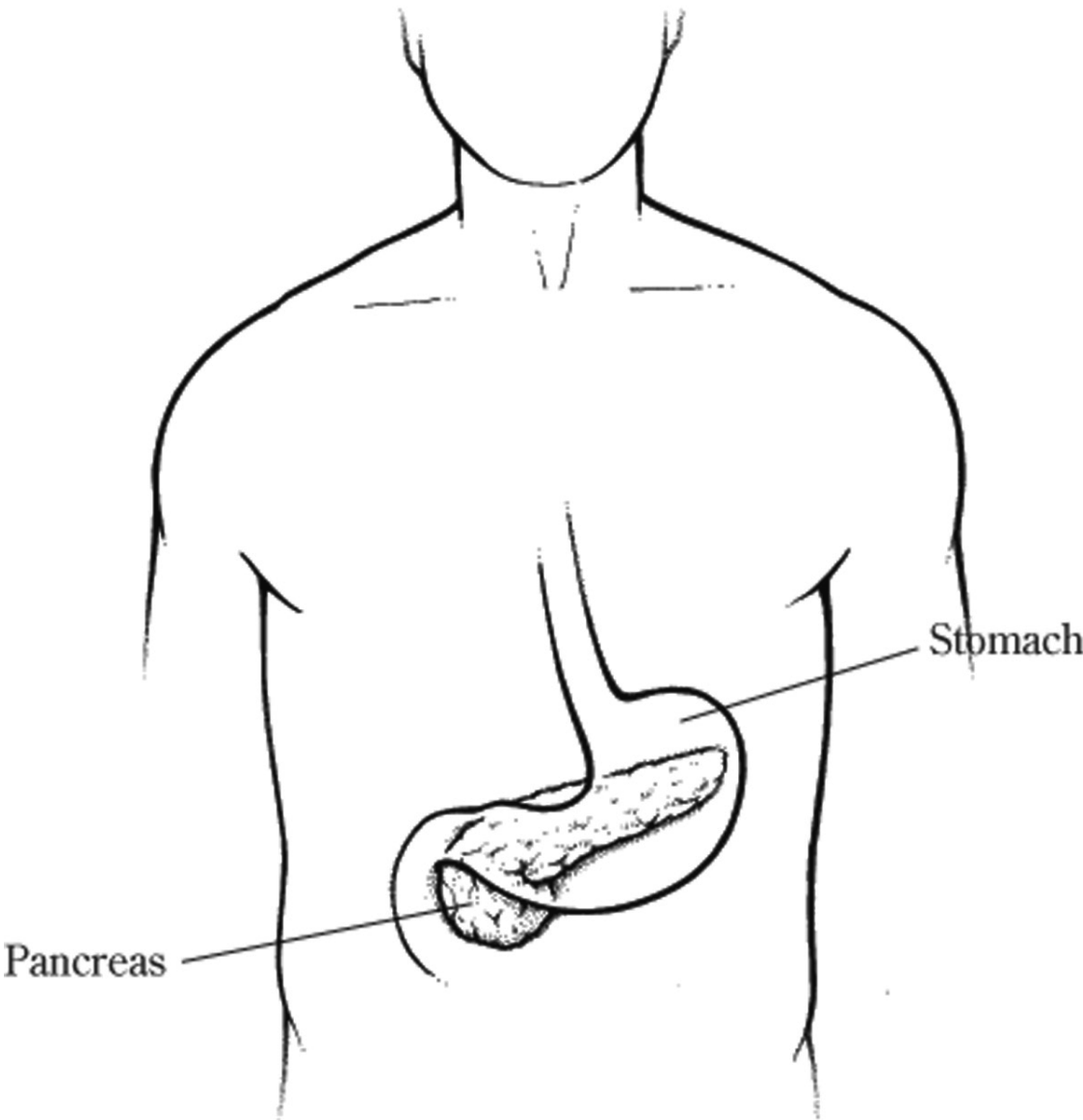
Knowledge will be evaluated by achievement of learning objectives and by responses to questions during the session. The ability to apply knowledge will be evaluated by the recognition of feelings about diabetes, the development of personal self-management goals, by the development and implementation of a plan to achieve those goals, and through achievement of program outcome measures.

DOCUMENTATION PLAN

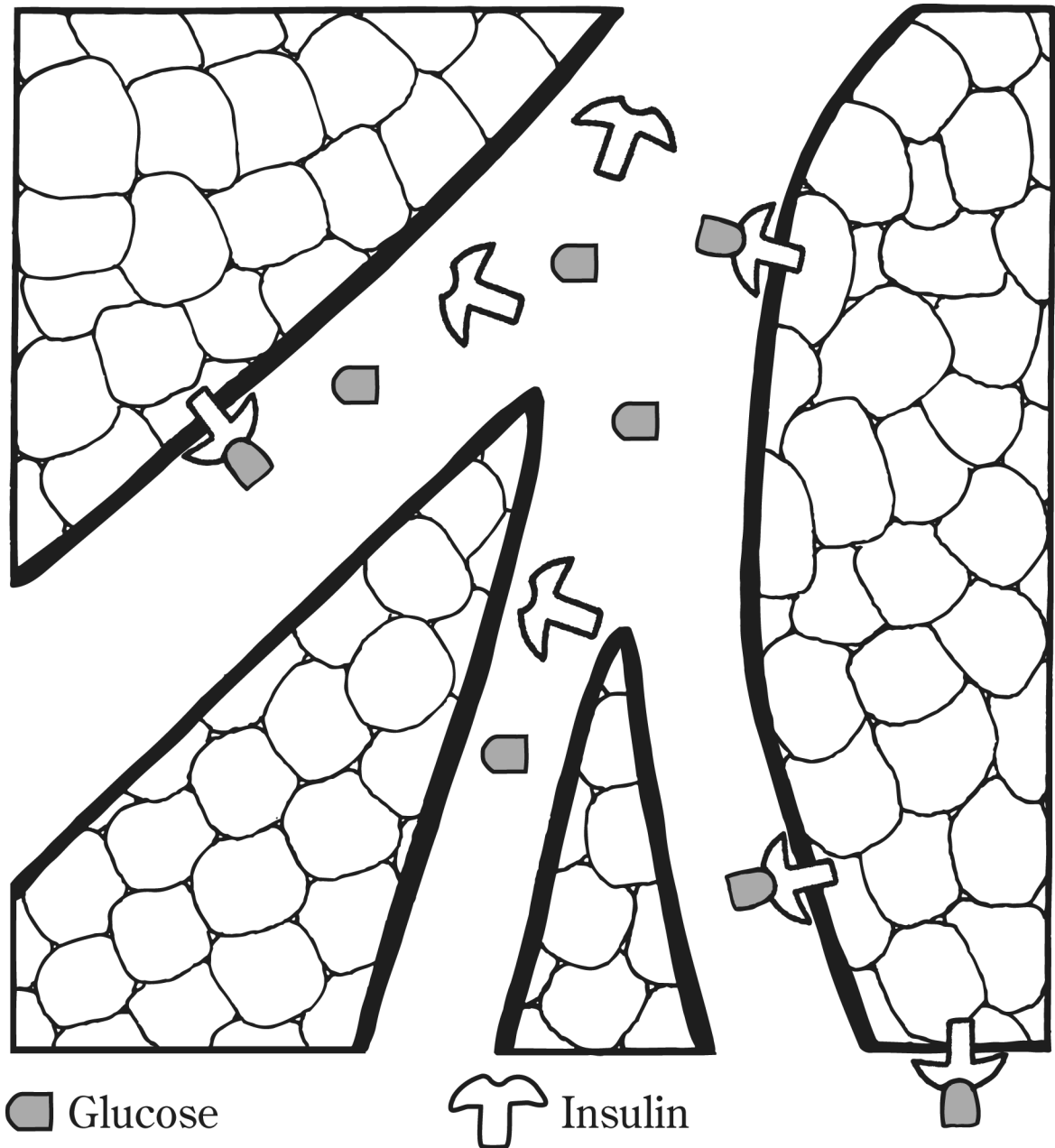
Record class attendance and achieved objectives, as appropriate.



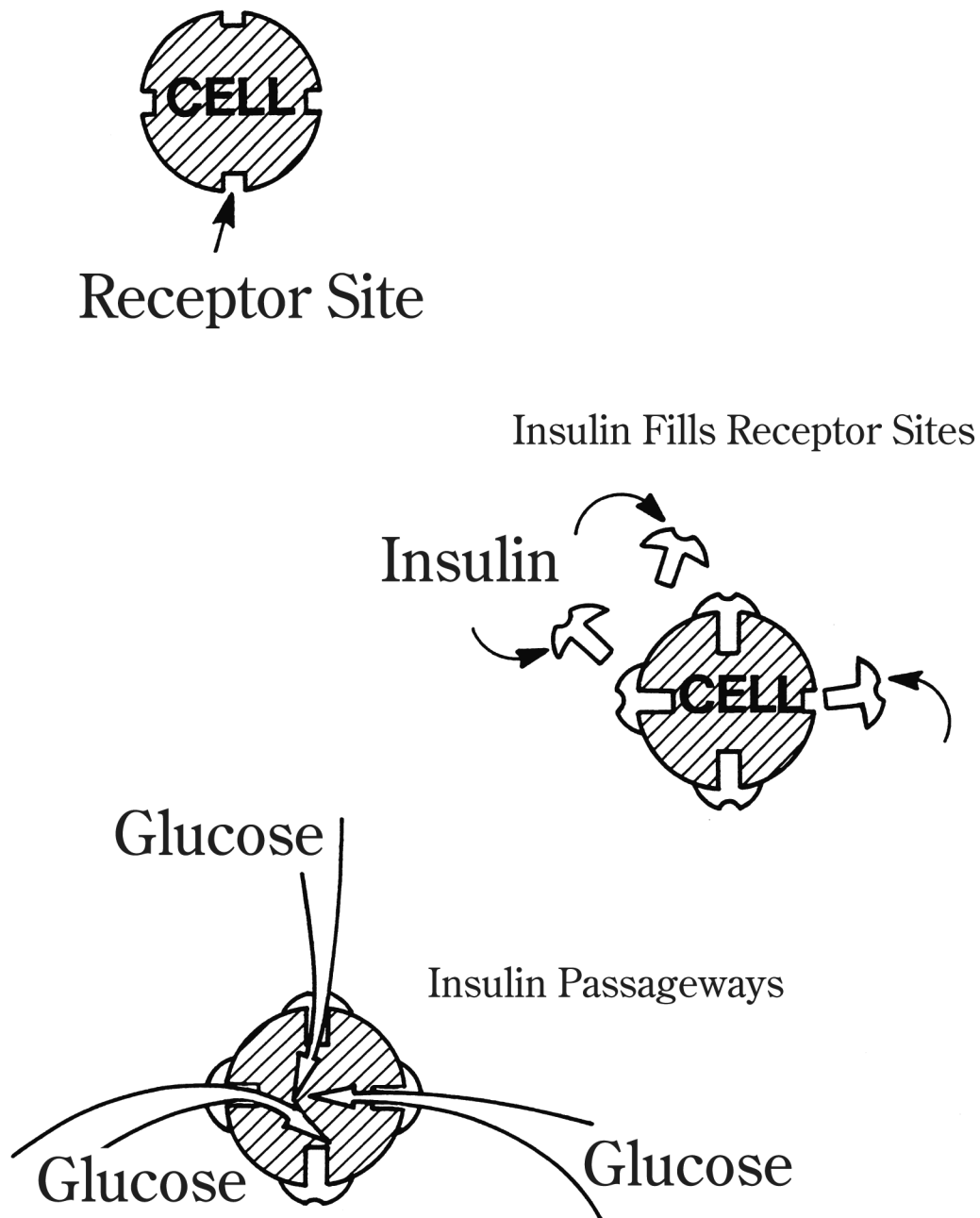
➔ Pancreas



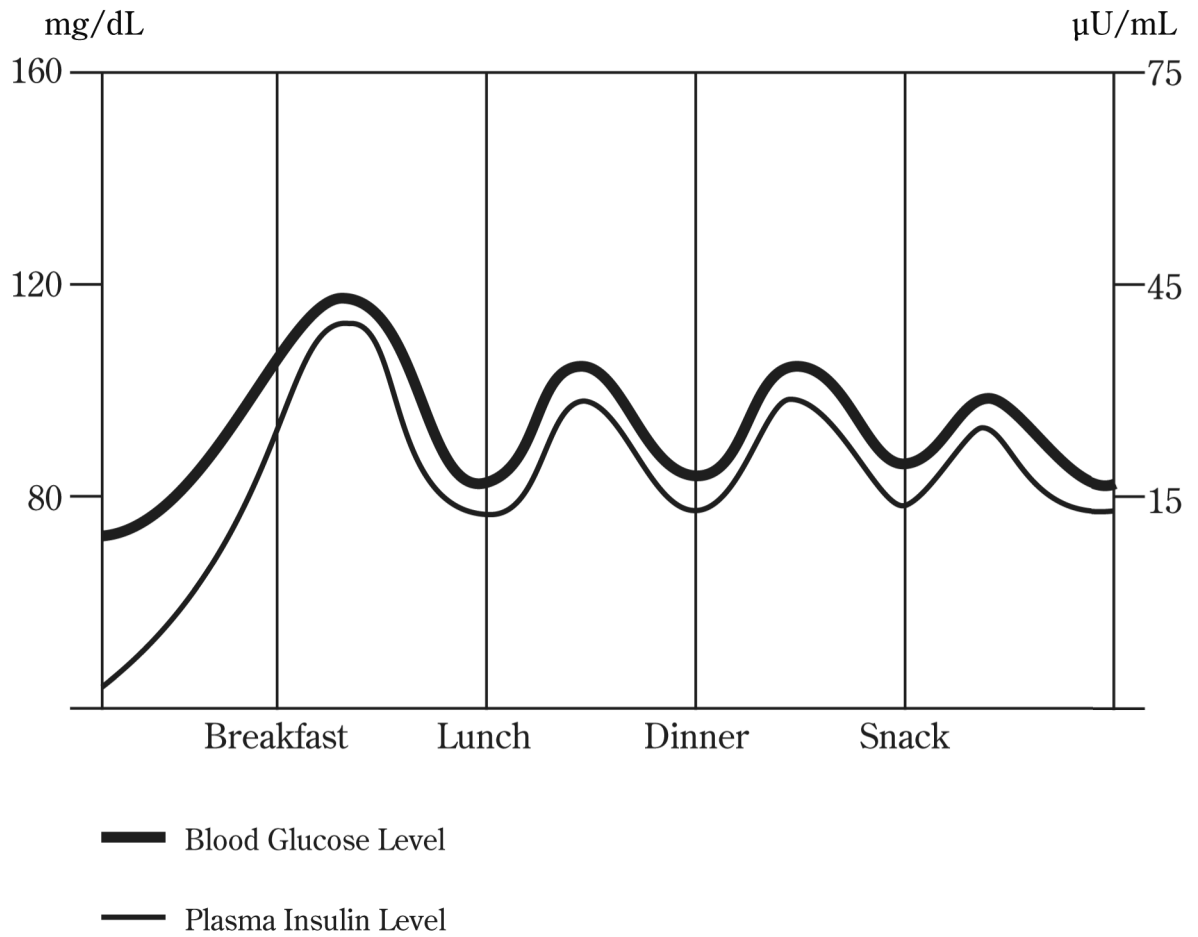
➔ Normal Glucose Metabolism



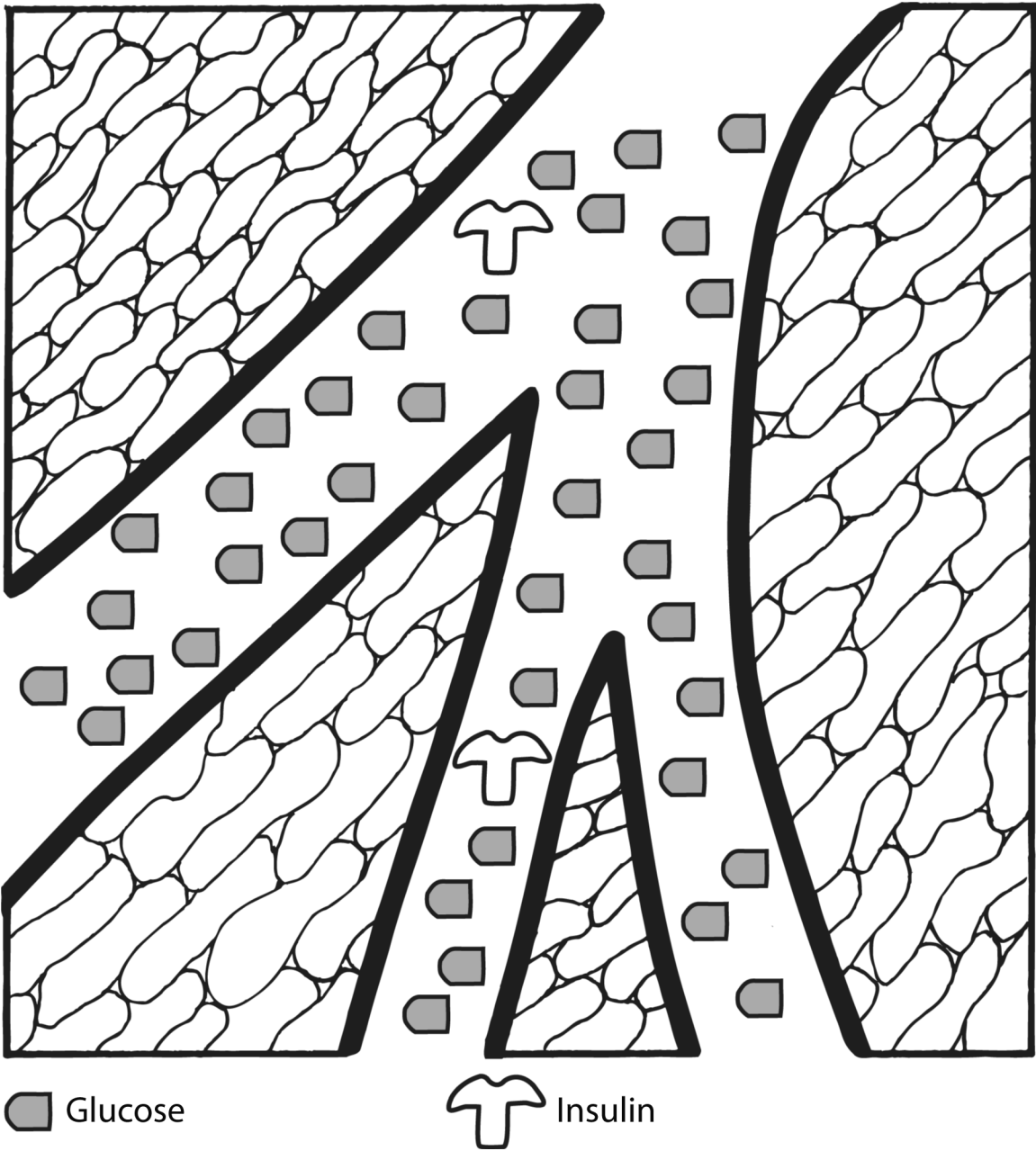
➔ How Insulin Works



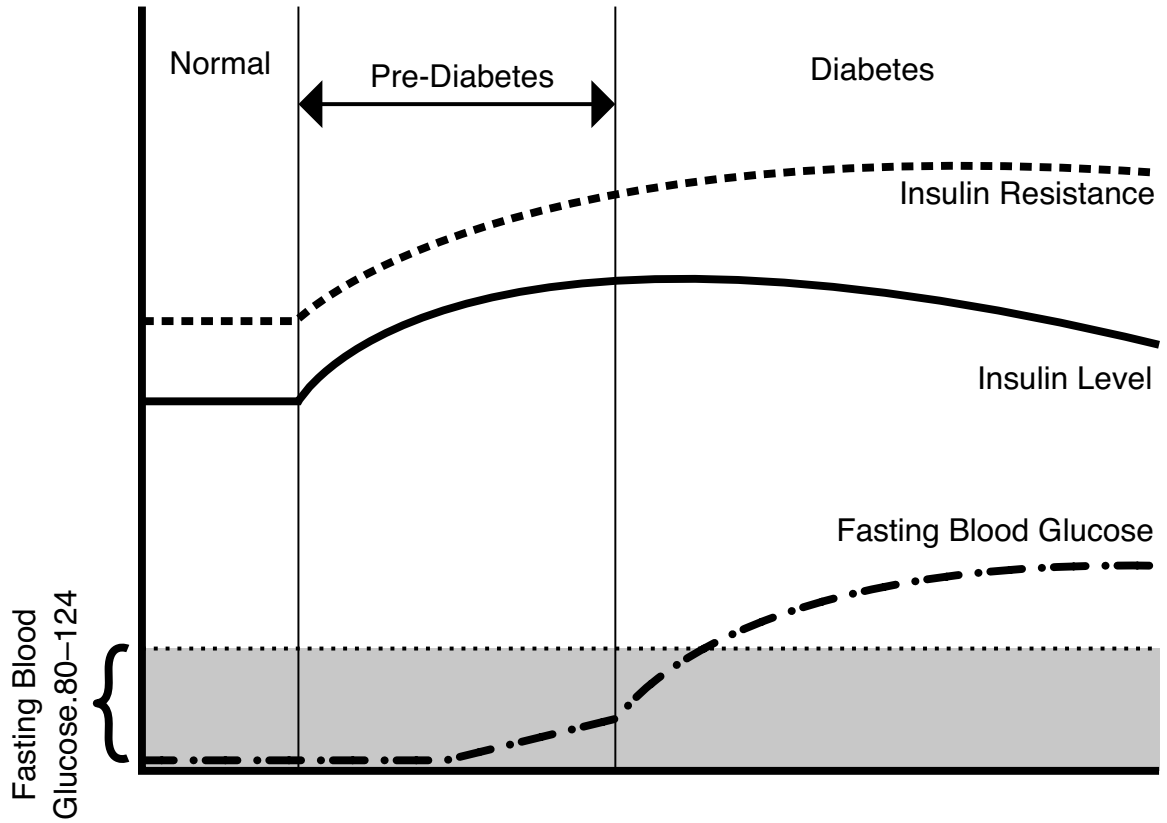
➔ Normal Blood Glucose and Insulin Levels



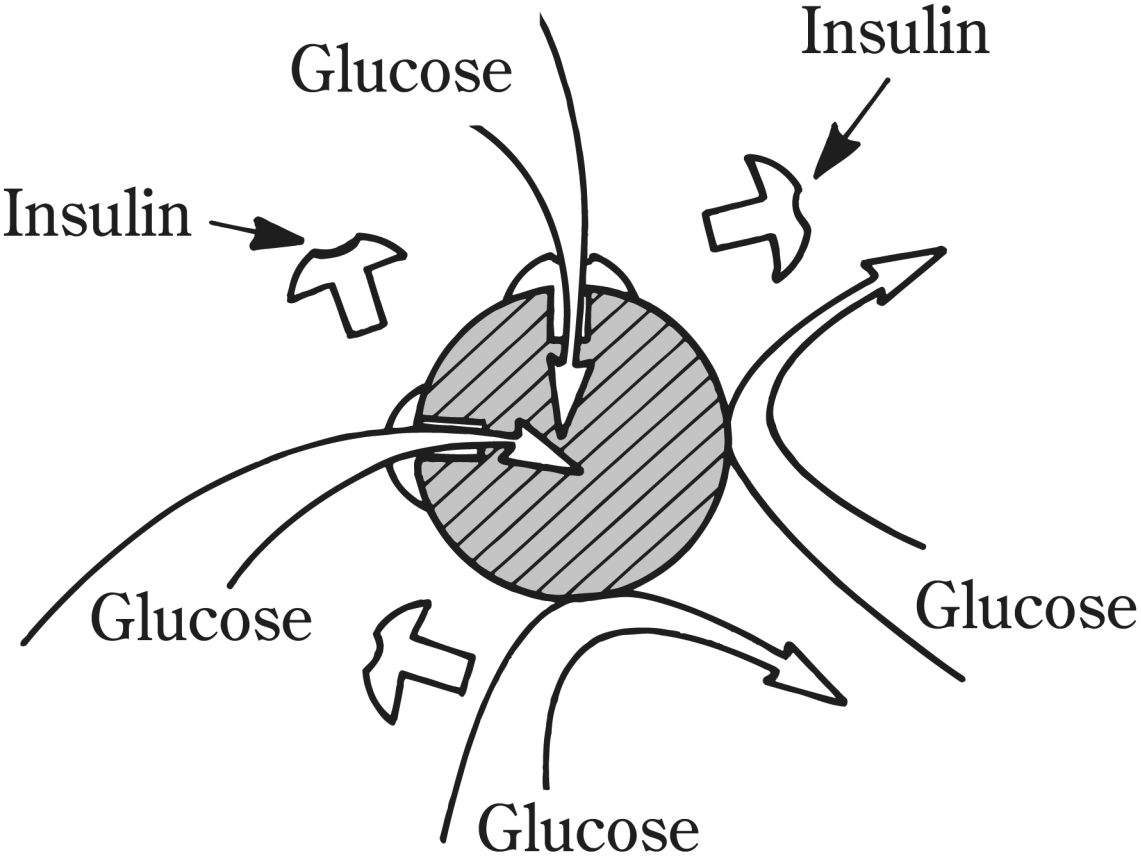
➔ Glucose Metabolism in Diabetes



➔ Natural History of Type 2 Diabetes



➔ Insulin Resistance





➔ Target Blood Glucose Levels

Blood glucose
(plasma)

Before meals


80–130 mg/dL

After meals*

Less than 180 mg/dL

A1C

Less than 7%**



Blood pressure

Less than 140/90 mmHg

* Two hours after the first bite of food.

** Or your personal target.

➔ Target Blood Glucose Levels

Blood glucose
(plasma)

Before meals

80–130 mg/dL

After meals*

Less than 180 mg/dL

A1C

Less than 7%**

Blood pressure

Less than 140/90 mmHg

* Two hours after the first bite of food.

** Or your personal target.

CONTENT OUTLINE 1

CONCEPT	CONTENT	INSTRUCTOR'S NOTES
8. Type 1 diabetes	8.1 There are several types of diabetes. The two most common types are type 1 and type 2.	Ask, "What type of diabetes do you have?" If most participants have one type, the others do not need to be addressed in detail.
	8.2 In type 1 diabetes, the pancreas makes little or no insulin.	Old names for type 1 diabetes are insulin-dependent, juvenile-onset, ketosis-prone, unstable, or brittle diabetes.
	8.3 People with type 1 diabetes are prone to develop ketosis.	Clarify the difference between type 1 and type 2 diabetes. People with type 2 diabetes are unlikely to develop ketosis.
	8.4 People with type 1 diabetes need to take insulin to stay alive.	Even when people with type 2 diabetes need insulin to manage their blood glucose, they do not have type 1 diabetes.
	8.5 Type 1 diabetes can begin at any age, but generally begins among children and young adults. About 25–40% of people with type 1 diabetes are diagnosed as adults.	The incidence of type 2 diabetes among children and adolescents is increasing. LADA (latent autoimmune diabetes in adults) is a slow progressing form of type 1 diabetes that is often misdiagnosed as type 2 diabetes. The C-peptide test can be used to determine the type of diabetes. This blood test measures how much insulin is being made by the pancreas. A low result can indicate type 1 diabetes. However, the diagnosis is generally made by onset and severity of symptoms.
9. Type 2 diabetes	9.1 In type 2 diabetes, the pancreas is producing insulin, but the amount is not adequate, or the insulin is not effective in lowering blood glucose because the cells are resistant.	Old names for type 2 diabetes are <i>maturity-onset</i> , <i>adult-onset</i> , and <i>insulin-resistant diabetes</i> . Use Visual 1-6, Natural History of Type 2 Diabetes.

#2 Learning to Live Well with Diabetes



STATEMENT OF PURPOSE

This session is intended to encourage people with diabetes and their significant others to recognize and express feelings about having diabetes, understand how these emotions and stress affect their lives, explain how emotions and stress affect their diabetes, and identify healthy coping strategies.

PREREQUISITES

None.

OBJECTIVES

At the end of this session, participants will be able to:

1. express the effects diabetes has had or may have on their way of life and the lives of their families;
2. state whom they have told about their diabetes, who needs to be told, and why;
3. express thoughts and feelings about having diabetes;
4. define diabetes-related distress, life stresses, and clinical depression;
5. state the effects of the emotional burden, life stress, and depression on diabetes;
6. share experiences, useful strategies, and barriers for coping and living with diabetes; and
7. identify a source of emotional support or one way to increase support.

CONTENT

Developing personal strategies to address psychosocial issues and concerns.

#3**Making Decisions, Solving Problems, and Changing Behavior****STATEMENT OF PURPOSE**

This session is intended to present a person-centered approach to diabetes self-management. Behavior-change strategies and goal setting are included. This content is most useful if presented during the first or second session, and participants are encouraged to choose a short-term behavioral goal or action step as an experiment at each session. You can then use these experiences to generate discussion and involve the group in problem-solving. The I-SMART goal-setting form can be used during each subsequent session as a way to help participants establish new goals or sustain the changes they made.

PREREQUISITES

None.

OBJECTIVES

At the end of this session, participants will be able to:

1. identify specific strategies to assume personal responsibility for diabetes self-management;
2. identify a personally meaningful behavioral goal they would like to reach in order to improve their diabetes outcomes and coping strategies;
3. state a specific strategy for making a behavioral change;
4. identify a personal long-term goal related to diabetes;
5. create a LIFE plan for decision-making;
6. choose an I-SMART behavior-change action plan related to their personal long-term goal; and
7. make a commitment to carry out and evaluate an I-SMART action plan before the next session.

CONTENT

Developing personal strategies to promote health and behavior change.

#4 The Basics of Eating with Diabetes



STATEMENT OF PURPOSE

This session is intended to emphasize the critical role of food choices in diabetes management. The composition of different foods and their impact on blood glucose are discussed, and participants are asked to consider how they most want to benefit from meal planning and their concerns about the nutritional aspects of diabetes self-management. Practice in measuring food is included. Specific meal patterns are not included in this session to ensure that participants have a basic understanding of meal-planning and nutrition guidelines. If participants know much of this information, you may choose to combine this material with the content in Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99). Participants are encouraged to have the person who prepares their food attend the nutrition sessions with them. Participants are asked to assess their own eating by keeping a food log before the next session.

PREREQUISITES

None.

OBJECTIVES

At the end of this session, participants will be able to:

1. state the most important personal reason they might choose to use a meal plan;
2. develop an initial understanding of their personal emotional and cultural eating habits and influences;
3. state how the timing of food intake and diabetes medications can help them reach their blood glucose goals;
4. state how monitoring the amount of food eaten can help them reach their blood glucose and weight goals;
5. state how the composition of their meal plans can help them reach their blood glucose goals;
6. name the five basic groups of food;
7. name the three nutrients in food that contain calories and how they affect blood glucose;
8. name the foods they eat that are highest in protein, fat, and carbohydrate;
9. demonstrate how to measure liquid and dry ingredients;
10. demonstrate how to read a food label; and
11. describe how to keep a food log.

#5**Planning Meals and
Carbohydrate Counting****STATEMENT OF PURPOSE**

This session builds on the information in Outline 4, *The Basics of Eating with Diabetes* (p. 65), and provides information and practice in planning menus using healthful eating, the plate method, and managing or counting carbohydrate choices or grams. The purpose of this session is to present a variety of options for meal planning. Omit discussions of approaches that do not meet the needs or interests of your participants. Sections on eating out, using sugar substitutes, using alcohol, and selecting cookbooks are included. Information about nutrient claims and shopping on a budget are included in Outline 15, *Stocking the Cupboard* (p. 413). Additional meal planning strategies are provided in Outline 13, *Keeping Your Heart Healthy* (p. 353), and Outline 16, *Food and Weight* (p. 431). The choice of a meal plan and pattern depends on the personal goals, abilities, and lifestyle preferences of each participant and the type of diabetes he or she has. Other considerations include medications and other therapies, status of diabetes, other health issues, and financial, cultural, and psychosocial concerns. Encourage participants to consider which approach they could most easily use on a daily basis. If they cannot use the meal plan or pattern in their daily lives or the plan is ineffective for target attainment, the plan or the treatment needs to be changed.

PREREQUISITES

This session will be more useful for those who complete and bring a food log to the session. It is recommended that each participant will have completed Outline 4, *The Basics of Eating with Diabetes* (p. 65) or have achieved those objectives. If they have a meal plan, ask that participants bring it to class with them.

OBJECTIVES

At the end of this session, participants will be able to:

1. identify strategies to incorporate meal planning into their daily lives;
2. use the food log to compare their food choices with their personal goals;
3. describe different meal patterns for planning meals;
4. use one of these patterns to plan a personal menu for 1 day;
5. state the rationale for managing carbohydrate intake to manage diabetes;
6. describe two methods of managing carbohydrates;
7. plan one restaurant meal that fits within their meal plan and pattern;
8. identify guidelines for the use of sugar substitutes;
9. identify three guidelines for the safe use of alcohol (if they drink alcohol); and
10. identify personal benefits and barriers for their chosen meal-planning approach and pattern.

CONTENT

Incorporating nutritional management into lifestyle.

MATERIALS NEEDED

VISUALS PROVIDED

- 5-1. Reasons for Meal Planning
- 5-2. Plate Method: Breakfast
- 5-3. Plate Method: Lunch/Dinner
- 5-4. Carbohydrate Choices

Handouts (one per participant)

- 5-1. Amount of Nutrients in Different Food Choices
- 5-2. Carbohydrate Foods
- 5-3. Carbohydrates in My Food
- 5-4. How to Calculate Carbohydrates
- 5-5. My Mealtime Insulin Dosing Worksheet
- 5-6. Eating Away from Home
- 5-7. Guidelines for Use of Alcohol
- 5-8. Cookbooks for People with Diabetes

ADDITIONAL ITEMS

- Pencils for participants
- Board and markers
- Pictures of different foods or food models
- Food labels for commercially available products
- Restaurant menus (obtain from restaurants popular with participants)
- Examples of diabetes cookbooks, including appropriate culturally specific cookbooks
- *Plan Your Portions Diabetes Placemats* (<https://shopdiabetes.org/collections/diabetes-placemats>, or 800-232-6733)
- *Choose Your Foods: Plan Your Meals With the Plate Method* (<https://shopdiabetes.org/collections/patient-education-handouts>, or 800-232-6733)
- *Choose Your Foods: Count Your Carbs* (available from the <https://shopdiabetes.org/collections/patient-education-handouts>, or 800-232-6733)
- *Choose Your Foods: Match Your Insulin to Your Carbs* (<https://shopdiabetes.org/collections/patient-education-handouts>, or 800-232-6733)

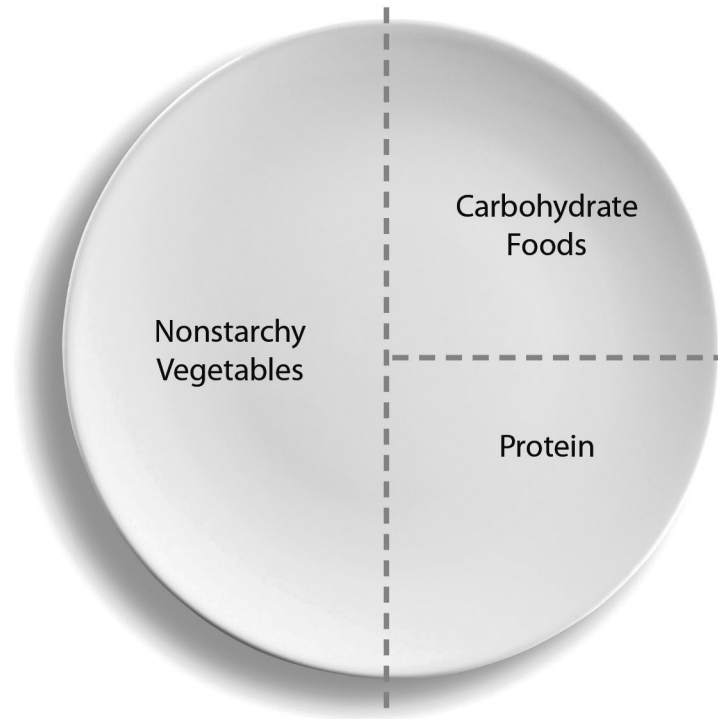
METHOD OF PRESENTATION

Start by introducing yourself and explaining what you do. Ask participants to introduce themselves. Begin by asking about the action step they chose at the last session and what they learned from their experience. Ask participants to review their food logs by asking if they made any discoveries while they were keeping these logs.

Family members and significant others, especially those who shop or prepare meals for the person with diabetes, should be encouraged to attend. Include time for participants to practice meal planning by creating menus and meal patterns they could use at home and at a restaurant.

Present material in a question-and-discussion format, using the first question as a starting point. Provide appropriate content outlined below in response. Ask if there are additional questions, and respond, repeating the process for the entire session. Use the questions in the Instructor's Notes section to generate discussion if no questions are forthcoming after a period of silence. Keeping track of the content discussed in each session, using the Diabetes Self-Management Education Record, the Participant Follow-Up Record, or another form, will help you determine whether all needed content has been discussed.

➔ Plate Method: Lunch/Dinner



➔ Carbohydrate Choices

Amount	Food Item	Starch	Fruit	Milk	Other	Carbohydrate Choices
2 ounces	1/2 Bagel	2				2
1/2 cup	Orange juice		1			1
1 cup	Milk			1		1
1 cup	Mashed potatoes	2				2
8 ounces	Artificially sweetened yogurt			1		1
1 small	Banana		1			2

Combination Foods—Exchange Value Available

1 cup	Potato salad	2				2
1	Ice cream bar	1				1
2 cups	Spaghetti and meatballs	6				6
8 ounces	Fat-free vanilla yogurt		1	1 1/2		2 1/2

Combination Foods—Exchange Value Not Available

16	Cheese Tidbits = 8 grams carbohydrate					1/2
1	Oreo Big Stuff cookie = 33 grams carbohydrate					2
8 ounces	Stouffers Vegetable Lasagna = 28 grams carbohydrate					2
1	Big Mac = 43 grams carbohydrate					3

➔ Amount of Nutrients in Different Food Choices

The following chart shows the amount of nutrients in 1 choice from each list.

FOOD LIST	CARBOHYDRATE (GRAMS)	PROTEIN (GRAMS)	FAT (GRAMS)	CALORIES
CARBOHYDRATES				
Starch: breads; cereals; grains and pasta; starchy vegetables; crackers and snacks; beans, peas, and lentils	15	3	1	80
Fruits	15	—	—	60
Milk and Milk Substitutes				
fat-free, low-fat, 1%	12	8	0-3	100
reduced-fat, 2%	12	8	5	120
whole	12	8	8	160
Nonstarchy Vegetables	5	2	—	25
Sweets, Desserts, and Other Carbohydrates	15	varies	varies	varies
PROTEINS				
Lean	—	7	2	45
Medium-Fat	—	7	5	75
High-Fat	—	7	8	100
Plant-Based	varies	7	varies	varies
FATS	—	—	5	45
ALCOHOL	varies	—	—	100

Source: Academy of Nutrition and Dietetics, American Diabetes Association. *Choose Your Foods: Food Lists for Diabetes*. Arlington, VA, Academy of Nutrition and Dietetics, American Diabetes Association, 2019.

Carbohydrate Foods

Starch

The following amounts are **1 carbohydrate choice (about 15 grams of carbohydrate)**:

Breads

FOOD	SERVING SIZE
Bagel	¼ large bagel (1 oz)
Biscuit	1 biscuit (2½ inches across)
Bread, white or whole grain	1 slice (1 oz)
Cornbread	1¾-inch cube (1½ oz)
English muffin	½ muffin
Hot dog or hamburger bun	½ bun (¾ oz)
Naan, chapati, or roti	1 oz
Pancake	1 pancake (4 inches across, ¼-inch thick)
Pita	½ pita (6 inches across)
Tortilla, corn	1 small tortilla (6 inches across)
Tortilla, flour (white or whole wheat)	1 small tortilla (6 inches across) or ½ large tortilla (10 inches across)
Waffle	1 waffle (4 inches across)

Cereals and Grains (Including Pasta and Rice)

FOOD	SERVING SIZE*
Barley, couscous, millet, pasta (white or whole wheat, all shapes and sizes), polenta, quinoa (all colors), or rice (white, brown, and other colors and types)	½ cup
Bran cereal (twigs, buds, or flakes), shredded wheat (plain), or sugar-coated cereal	½ cup
Bulgur, kasha, tabbouleh (tabouli), or wild rice	½ cup
Granola cereal	¼ cup
Hot cereal (oats, oatmeal, grits)	½ cup
Unsweetened, ready-to-eat cereal	¾ cup

Beans and Lentils

FOOD	SERVING SIZE
Baked beans, canned	½ cup
Beans (black, garbanzo, kidney, lima, navy, pinto, white), lentils (any color), or peas (black-eyed and split), cooked or canned, drained and rinsed	½ cup

Starchy Vegetables

FOOD	SERVING SIZE*
Cassava, dasheen, or plantain	½ cup
Corn, green peas, mixed vegetables, or parsnips	½ cup
Marinara, pasta, or spaghetti sauce	½ cup
Mixed vegetables (when it includes corn or peas)	1 cup
French fries (oven-baked)	1 cup (2 oz)
Potato, baked with skin	¼ large (3 oz)
Potato, mashed with milk and fat	½ cup
Squash, winter (acorn, butternut)	1 cup
Yam or sweet potato, plain	½ cup (3½ oz)

Crackers and Snacks

FOOD	SERVING SIZE
Crackers, animal	8 crackers
Crackers, graham, 2½-inch square	3 squares
Crackers, saltine or round butter-type	6 crackers
Granola or snack bar	1 bar (¾ oz)
Popcorn, plain	3 cups, popped
Pretzels	¾ oz
Rice cakes, 4 inches across	2 cakes
Snack chips, baked (potato, pita)	about 8 chips (¾ oz)
Snack chips, regular (tortilla, potato)	about 13 chips (1 oz)

*Serving sizes for all starchy vegetables, grains, and pasta are cooked amounts.

continued

CARBOHYDRATE FOODS *continued***Fruits**

The following amounts are **1 carbohydrate choice (about 15 grams of carbohydrate)**:

FOOD	SERVING SIZE*
Applesauce, unsweetened	½ cup
Banana	About a 4-inch long piece
Blueberries	¾ cup
Dried fruits (blueberries, cherries, cranberries, mixed fruit, raisins)	2 Tbsp
Fruit, canned	½ cup
Fruit, whole, small (apple)	1 small fruit (4 oz)
Fruit, whole, medium (nectarine, orange, pear, tangerine)	1 medium fruit (6 oz)
Fruit juice, unsweetened	½ cup (4 fl oz)
Grapes	17 small grapes (3 oz)
Melon, diced	1 cup
Strawberries, whole	1¼ cup

*The weights listed include skin, core, and seeds.

Milk and Milk Substitutes

The following amounts are **1 carbohydrate choice (about 12 grams of carbohydrate)**:

FOOD	SERVING SIZE
Milk, fat-free (skim), low-fat (1%), reduced-fat (2%), whole	1 cup
Soy or rice drink, plain, fat-free	1 cup
Yogurt (including Greek), plain or sweetened with an artificial sweetener*	¾ cup (6 oz)

*Yogurt varies in carbohydrate content, so check the food label to be sure.

Nonstarchy Vegetables

The following amounts are about **5 grams of carbohydrate**:

FOOD*	SERVING SIZE
Salad or leafy greens, raw	3 cups
Vegetables, cooked	½ cup
Vegetables, raw	1 cup
Vegetable juice	½ cup

*Nonstarchy vegetables include asparagus, beets, broccoli, carrots, cauliflower, eggplant, green beans, greens (collard, dandelion, mustard, purslane, turnip), mushrooms, onions, pea pods, peppers, spinach, squash (summer, crookneck, zucchini), and tomatoes.

Combination Foods

FOOD	SERVING SIZE
1 CARBOHYDRATE CHOICE (about 15 grams of carbohydrate):	
Soup (tomato, cream, and broth types)	1 cup (8 fl oz)
Stew (beef/other meats and vegetables)	1 cup (8 fl oz)
2 CARBOHYDRATE CHOICES (about 30 grams of carbohydrate):	
Casserole-type entrées (tuna noodle, lasagna, spaghetti and meatballs, chili with beans, macaroni and cheese)	1 cup (8 oz)
Pizza, thin crust	¼ of 12-inch pizza (5 oz)
Potato or macaroni/pasta salad	½ cup
3 CARBOHYDRATE CHOICES (about 45 grams of carbohydrate):	
Burrito (beef and bean)	1 burrito (5 oz)
Dinner-type healthy frozen meal (includes dessert and is usually less than 400 calories)	1 meal (about 9-12 oz)

continued

CARBOHYDRATE FOODS *continued*

Restaurant Foods

FOOD	SERVING SIZE
1 CARBOHYDRATE CHOICE (about 15 grams of carbohydrate):	
Chicken breast, breaded and fried	1 chicken breast (about 7 oz with bone and skin)
Chicken nuggets or tenders	6 pieces (about 3½ oz)
Meat, fish, or poultry stir-fried with vegetables	1 cup (about 6 oz)
Egg roll, meat	1 egg roll (about 3 oz)
Taco, crispy shell, with meat and cheese	1 small taco (about 3 oz)
2 CARBOHYDRATE CHOICES (about 30 grams of carbohydrate):	
Breakfast sandwich, biscuit or English muffin variety (with egg, meat, and cheese)	1 sandwich
Hamburger, regular	1 burger (3½ oz) with bun
Noodles and vegetables in sauce (chow mein, lo mein)	1 cup
3 CARBOHYDRATE CHOICES (about 45 grams of carbohydrate):	
Chicken sandwich, grilled (with lettuce, tomato, spread)	1 sandwich (about 7½ oz)
French fries	1 medium order (about 5 oz)
Submarine sandwich	1 6-inch sub

Sweets and Desserts

FOOD	SERVING SIZE
1 CARBOHYDRATE CHOICE (about 15 grams of carbohydrate):	
Brownie, small, unfrosted	1¼-inch square, ⅞-inch high (about 1 oz)
Cake, unfrosted	2-inch square (about 1 oz)
Candy, hard	3 pieces
Ice cream, regular	½ cup
Pudding, sugar-free or sugar- and fat-free (made with fat-free milk)	½ cup
Sandwich cookie with cream filling	2 small cookies (about ⅔ oz)
2 CARBOHYDRATE CHOICES (about 30 grams of carbohydrate):	
Candy, chocolate, dark or milk	1¾ oz
Cupcake, frosted	1 small cupcake (about 1¾ oz)
Donut, yeast-type, glazed	1 donut, 3¾ inches across (2 oz)
3 CARBOHYDRATE CHOICES (about 45 grams of carbohydrate):	
Flan	⅔ cup
Fruit cobbler	½ cup (3½ oz)

Key to Food Measurements

Tbsp = tablespoon

oz = ounce

lb = pound

tsp = teaspoon

fl oz = fluid ounce

g = gram

Source: Academy of Nutrition and Dietetics, American Diabetes Association. *Choose Your Foods: Count Your Carbs*. Arlington, VA, Academy of Nutrition and Dietetics, American Diabetes Association, 2019.

➔ How to Calculate Carbohydrates

If you know the serving size for a food product and the grams of carbohydrate in that serving size, you can find the number of grams or choices in a different serving size in two steps:

1. **Divide** your serving size by the serving size on the label.
 2. **Multiply** the result by the grams of carbohydrate per serving on the label.
-

Example 1

Label information:

Serving size = 1/2 cup (0.5) Carbohydrate: 22 grams

Your serving = 3/4 cup (0.75)

1. **Divide** your serving size by the serving size on the label.

$$0.75 \div 0.5 = 1.5$$

2. **Multiply** the result by the grams of carbohydrate on the label.

$$1.5 \times 22 \text{ grams} = 33 \text{ grams}$$

Your serving has 33 grams of carbohydrate.

Note: Sometimes you can estimate the amount without using the formula. In this example, you can see that your serving size is 1 1/2 times the serving size mentioned on the label. You can just add half the carbohydrate (11 grams) to the label amount (22 grams) to get the amount in your serving (33 grams).

continued

➔ My Mealtime Insulin Dosing Worksheet

MY TARGET BLOOD GLUCOSE	MY PERSONAL INSULIN PLAN
Fasting or Premeal: _____ _____ hours after eating: _____	Insulin-to-Carbohydrate Ratio: _____ Blood Glucose Correction Factor: _____

Mealtime (Bolus) Insulin Dosing

Step 1: Check your blood glucose before eating a meal = _____ mg/dL

Step 2: Figure out how much **mealtime insulin** you need:

- Add up the grams of carbohydrates in the foods you will eat.
- Divide the total grams of carbohydrates by your **insulin-to-carbohydrate ratio**. This is the amount of **mealtime insulin** needed:

_____ grams of carbohydrates ÷ _____ (insulin-to-carbohydrate ratio) = _____ units of rapid-acting insulin

Step 3: If your blood glucose is **high** or **low** before eating, calculate your **correction insulin**:

- When your current blood glucose level is **higher** than your target, subtract the target from your current level:

_____ mg/dL (current) - _____ mg/dL (target) = _____ mg/dL

- When your current blood glucose level is **lower** than your target, subtract your current level from the target:

_____ mg/dL (target) - _____ mg/dL (current) = _____ mg/dL

Divide this amount by your **blood glucose correction factor**. This is your **correction insulin** amount:

_____ mg/dL (from Step 3) ÷ _____ (correction factor) = _____ units of rapid-acting insulin

Putting It Together: My Mealtime (Bolus) Insulin Dose

If your blood glucose is **above** your target, **add** the correction insulin (from Step 3) to your mealtime insulin dose (from Step 2).

mealtime insulin (_____ units) + correction insulin (_____ units) = _____ units

If your blood glucose is **below** your target, **subtract** the correction insulin (from Step 3) from your mealtime insulin dose (from Step 2):

mealtime insulin (_____ units) - correction insulin (_____ units) = _____ units

If your blood glucose is **at** your target, use the mealtime insulin amount from Step 2.

Source: Academy of Nutrition and Dietetics, American Diabetes Association. *Choose Your Foods: Match Your Insulin to Your Carbs*. Arlington, VA, Academy of Nutrition and Dietetics, American Diabetes Association, 2019.

#6 Physical Activity and Exercise



STATEMENT OF PURPOSE

This session is intended to provide information about the effects of physical activity on blood glucose and any needed nutrition adjustments for changes in activity. It also provides the opportunity to create a plan for an exercise program, if the participants desire.

PREREQUISITES

It is recommended that participants have basic knowledge about diabetes and self-management, from either personal experience or attending previous sessions.

OBJECTIVES

At the end of this session, participants will be able to:

1. list three benefits of regular physical activity or exercise;
2. describe the difference between aerobic and anaerobic exercise;
3. state the effects of physical activity and exercise on blood glucose levels;
4. state the benefits of a consistent exercise program;
5. determine target heart rate;
6. state possible signs and symptoms of hypoglycemia during and after exercise;
7. describe how to make adjustments in food intake or insulin doses to balance increases in physical activity; and
8. develop a personal exercise plan and strategies to overcome barriers.

CONTENT

Incorporating physical activity into lifestyle.

#7

**Oral Medications and
Incretin Mimetics**

STATEMENT OF PURPOSE

This session is intended to provide information about the purpose, action, use, and side effects of medications primarily used to treat type 2 diabetes. Discuss only those therapies relevant to the participants. Financial and other sources for medicines and needed supplies are described in Outline 14, *Putting the Pieces Together* (p. 379) and in the *Support Materials* (p. 521).

PREREQUISITES

It is recommended that only people currently taking oral diabetes medications and incretin mimetics attend this session. Participants who take these agents and insulin need information about both types of therapy.

OBJECTIVES

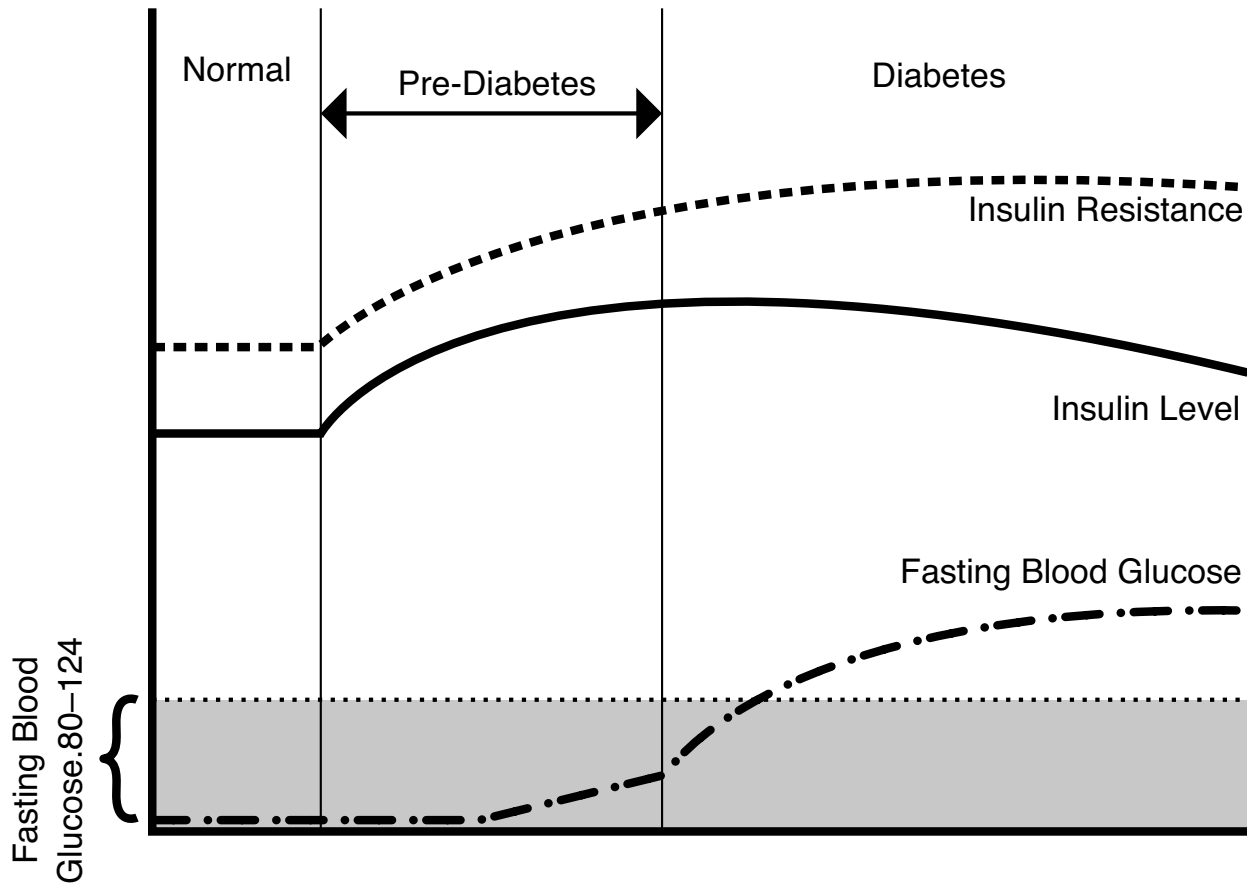
At the end of this session, participants will be able to:

1. define the purpose and action of oral diabetes medications (diabetes pills) and incretin mimetics;
2. state that oral diabetes medications and insulin mimetics are not insulin;
3. state the name of their oral or injectable diabetes medication, the dose to take, the time it should be taken, and how it relates to food choices and meal planning;
4. identify one strategy they will use for remembering to take their medications;
5. describe one side effect of oral diabetes medications;
6. identify the progressive nature of the treatment of type 2 diabetes; and
7. state that A1C is used to measure the effectiveness of their medications in helping them reach their targets.

CONTENT

Using medications safely and for maximum effectiveness.

➔ Natural History of Type 2 Diabetes



➔ Examples of Diabetes Medicines

Name	How Often to Take	When to Take
Biguanides: <i>Keep the liver from releasing too much glucose</i>		
Metformin (Glucophage, Fortamet, Glumetza, Glucophage XR)	1 or 2 times a day	Take with largest meal of the day to decrease stomach upset.
Metformin + a sulfonylurea (Glucovance, Metaglip, Amaryl-M)	1 or 2 times a day	
Metformin + Dapagliflozin + Saxagliptin (Qtrilmet) Metformin + Empagliflozin + Linagliptin (Trijardy)	Once a day Once a day	
Sulfonylureas: <i>Stimulate the pancreas to release more insulin</i>		
Glimepiride (Amaryl)	Once a day	Take glipizide 1/2 hour before meals.
Glipizide (Glucotrol, Glucotrol XL)	1 or 2 times a day	
Glyburide (Diabeta, Micronase, Glynase)	1 or 2 times a day	
Metaglitinides: <i>Stimulate the pancreas to release more insulin</i>		
Repaglinide (Prandin)	3–4 times a day	Take 1–30 minutes before meals.
Nateglinide (Starlix)	3–4 times a day	

continued

EXAMPLES OF DIABETES MEDICINES *continued*

Name	How Often to Take	When to Take
SGLT-2 Inhibitors: <i>Make excess glucose leave the body through urine</i>		
Canigliflozin (Invokana)	Once a day	Before first meal of the day
Dapagliflozin (Farxiga)		In the morning with or without food
Empagliflozin (Jardiance)		
Ertugliflozin (Steglatro)	Once a day	
Canigliflozin + Metformin (Invokamet, Invokamet XL)	2 times a day	With food
Dapagliflozin + Metformin XR (Xigduo XR)	Once a day	In the morning with food
Empagliflozin + Metformin (Synjardy, Synjardy XR)	1 or 2 times a day	With a meal
Ertugliflozin + Metformin (Segluromet)	Twice a day	With a meal
DPP-4 Inhibitors: <i>Stimulate the release of insulin and slows down the release of glucose</i>		
Sitagliptin (Januvia)	Once a day	Take with or without food
Linagliptin (Tradjenta)		
Saxagliptin (Onglyza)		
Alogliptin (Nesina)		
Sitagliptin + Metformin (Janumet, Janumet XR)		
Linagliptin + Metformin (Jentadueto, Jentadueto XR)	1 or 2 times a day	Take with a meal
Alogliptin + Metformin (Kazano)		
Saxagliptin + Metformin (Kombiglyze XR)	Once a day	Take with evening meal
Linagliptin + Empagliflozin (Glyxambi)	Once a day	In the morning with or without food

continued

➔ Examples of Diabetes Medicines

Name	How Often to Take	When to Take
Biguanides: <i>Keep the liver from releasing too much glucose</i>		
Metformin (Glucophage, Fortamet, Glumetza, Glucophage XR)	1 or 2 times a day	Take with largest meal of the day to decrease stomach upset.
Metformin + a sulfonylurea (Glucovance, Metaglip, Amaryl-M)	1 or 2 times a day	
Metformin + Dapagliflozin + Saxagliptin (Qtrilmet) Metformin + Empagliflozin + Linagliptin (Trijardy)	Once a day Once a day	
Sulfonylureas: <i>Stimulate the pancreas to release more insulin</i>		
Glimepiride (Amaryl)	Once a day	Take glipizide 1/2 hour before meals.
Glipizide (Glucotrol, Glucotrol XL)	1 or 2 times a day	
Glyburide (Diabeta, Micronase, Glynase)	1 or 2 times a day	
Metaglitinides: <i>Stimulate the pancreas to release more insulin</i>		
Repaglinide (Prandin)	3–4 times a day	Take 1–30 minutes before meals.
Nateglinide (Starlix)	3–4 times a day	

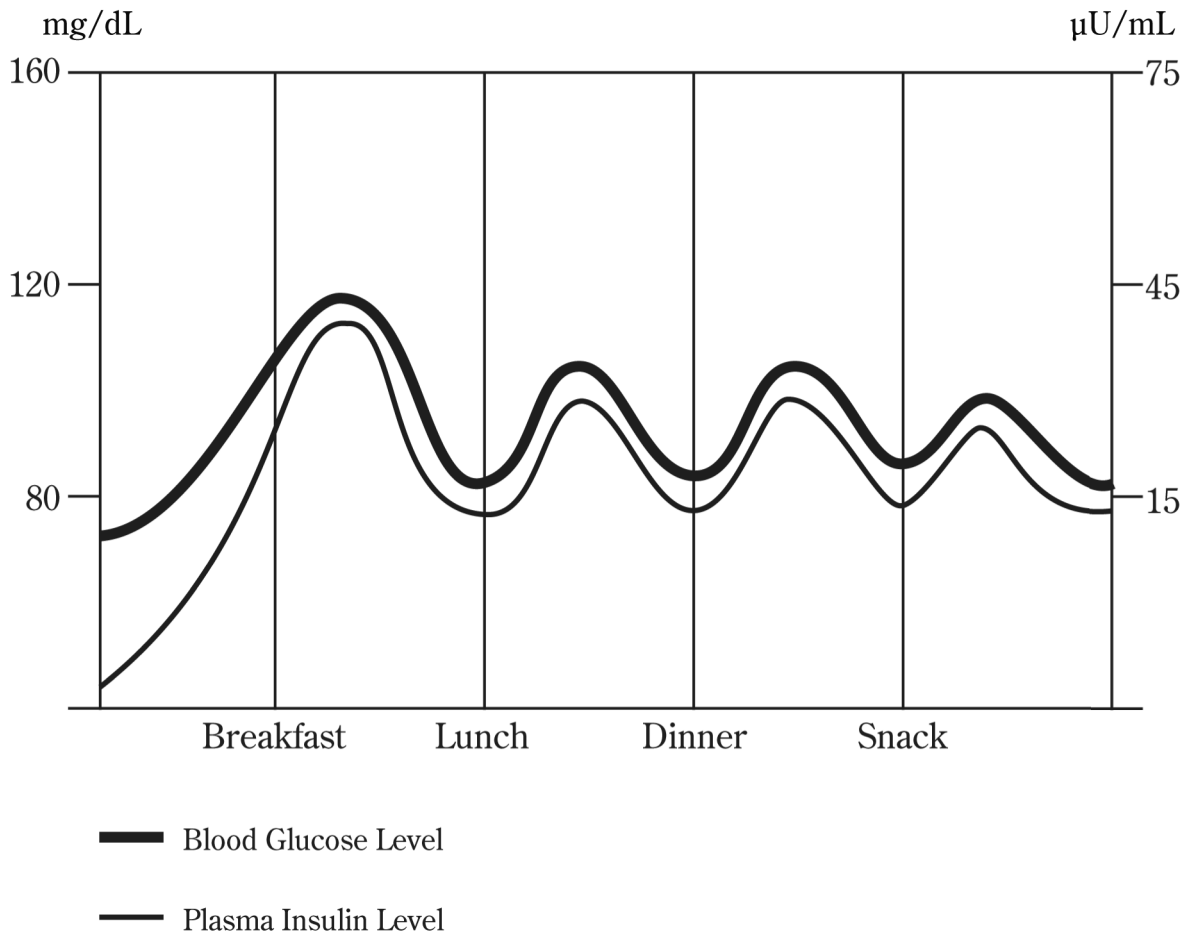
continued

EXAMPLES OF DIABETES MEDICINES *continued*

Name	How Often to Take	When to Take
SGLT-2 Inhibitors: <i>Make excess glucose leave the body through urine</i>		
Canigliflozin (Invokana)	Once a day	Before first meal of the day
Dapagliflozin (Farxiga)		In the morning with or without food
Empagliflozin (Jardiance)		
Ertugliflozin (Steglatro)	Once a day	
Canigliflozin + Metformin	2 times a day	With food
(Invokamet, Invokamet XL)		
Dapagliflozin + Metformin XR	Once a day	In the morning with food
(Xigduo XR)		
Empagliflozin + Metformin	1 or 2 times a day	With a meal
(Synjardy, Synjardy XR)		
Ertugliflozin + Metformin	Twice a day	With a meal
(Segluromet)		
DPP-4 Inhibitors: <i>Stimulate the release of insulin and slows down the release of glucose</i>		
Sitagliptin (Januvia)	Once a day	Take with or without food
Linagliptin (Tradjenta)		
Saxagliptin (Onglyza)		
Alogliptin (Nesina)		
Sitagliptin + Metformin		
(Janumet, Janumet XR)		
Linagliptin + Metformin	1 or 2 times a day	Take with a meal
(Jentadueto, Jentadueto XR)		
Alogliptin + Metformin (Kazano)		
Saxagliptin + Metformin	Once a day	Take with evening meal
(Kombiglyze XR)		
Linagliptin + Empagliflozin	Once a day	In the morning with or without food
(Glyxambi)		

continued

➔ Normal Blood Glucose and Insulin Levels



➔ Types of Insulin

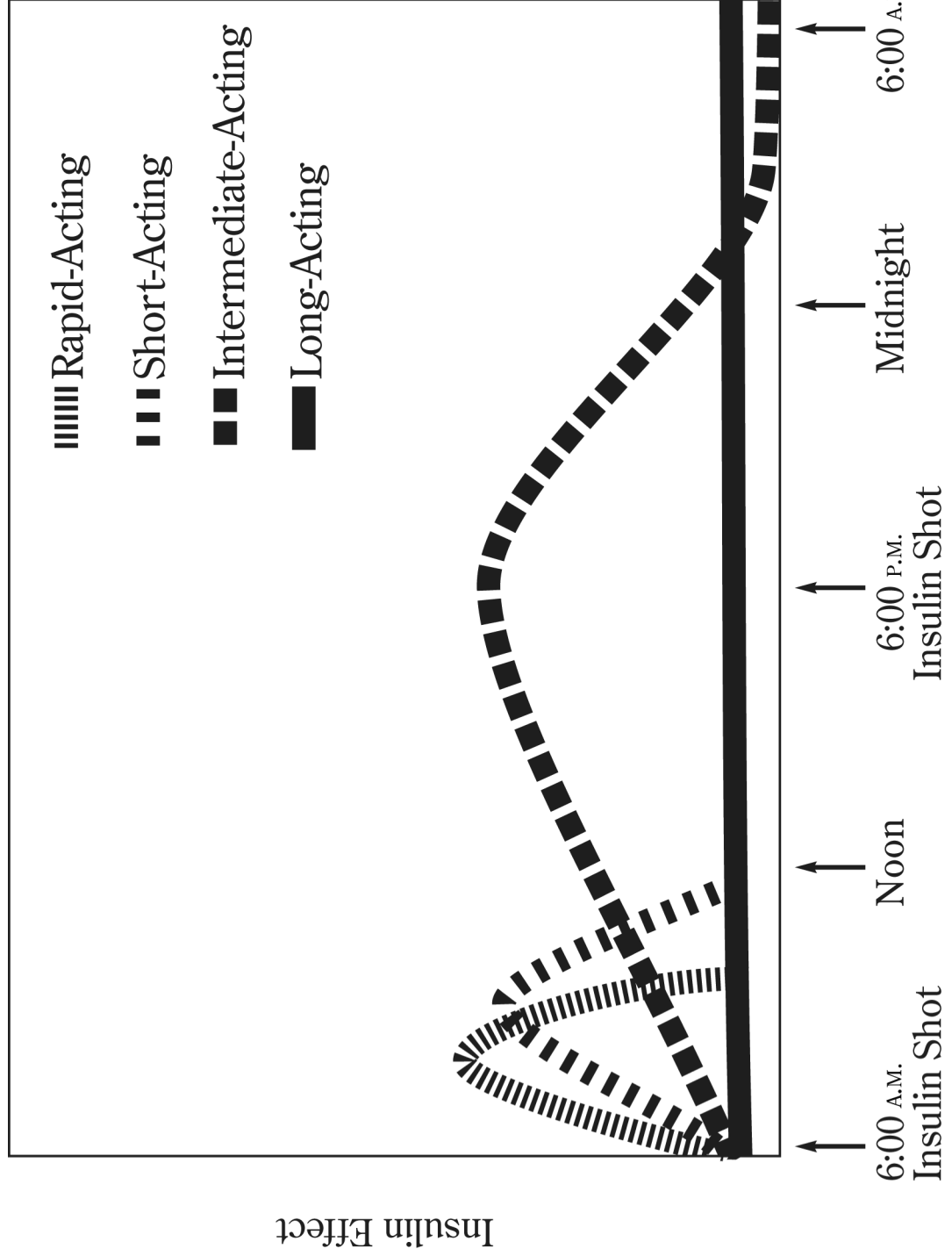
Type	Color	Effects	When to Take	When to Check Blood Glucose
Rapid-Acting Glulisine (Apidra) Lispro (Humalog U-100) (Humalog U-200) (Admelog) Aspart (Novolog, Fiasp)	Clear	Begins to work in 2–20 minutes, peaks in 30–90 minutes, and continues to work for 2–5 hours	5–15 minutes before eating Take Fiasp and Afrezza at the start of the meal	2 hours after the start of that meal
Afrezza (inhaled, U-100)	Powder			
Short-Acting Regular ReliOn R Novolin R Concentrated regular (U-500)	Clear	Begins to work in 30–60 minutes, peaks in 1–4 hours and continues to work for 5–8 hours	30 minutes before eating	2 hours after that meal and before the next meal
Intermediate-Acting NPH ReliOn N Novolin N	Cloudy	Begins to work in 1–3 hours, peaks in 4–12 hours and continues to work for 12–24 hours	Before breakfast and/or before supper or bedtime	Before breakfast and before supper

continued

TYPES OF INSULIN *continued*

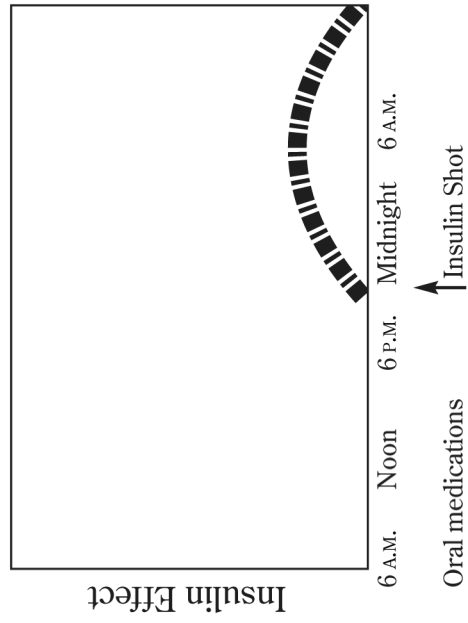
Type	Color	Effects	When to Take	When to Check Blood Sugar
Long-Acting Glargine (Lantus, Basaglar) Detemir (Levemir)	Clear	Begins to work in 1–2 hours and lasts for 18–24 hours	Same time each day; before bedtime and/ or breakfast	Before breakfast and at bedtime
Ultra-Long-Acting Degludec (Tresiba U-100) (Tresiba U-200) Glargine U-300 (Toujeo)	Clear	Begins to work in 1–6 hours and lasts for 36–42 hours	Once daily	Once daily
Insulin Mixtures 70/30; 75/25; 50/50 Rapid- or short-acting plus intermediate or ultra-long-acting plus rapid	Cloudy	Begins to work in 10–30 minutes and lasts up to 24 hours	Before breakfast and/or before supper	Before breakfast and before supper
Insulin + GLP-1 Insulin Mimetic				
Glargine + Lixisenatide (Soliqua 100/33)	Once a day	Up to 1 hour before first meal of the day		
Degludec +Liraglutide (Xultophy 100/3.6)	Once a day	Take with or without food		

Insulin Action Times

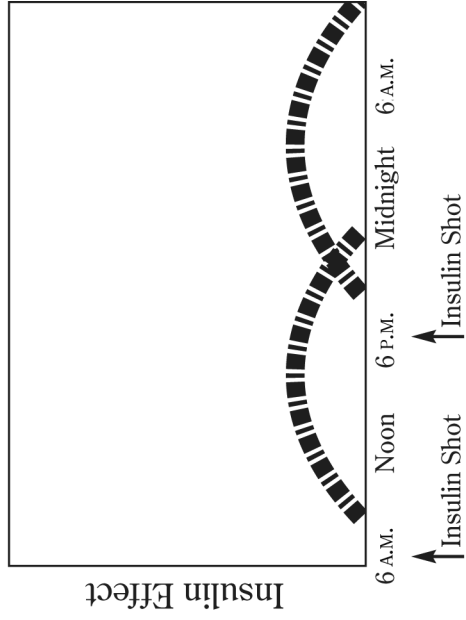


Insulin Programs

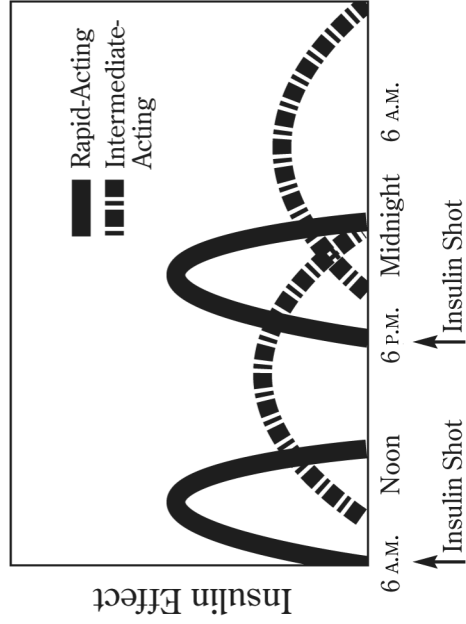
Intermediate-Acting (1 Dose)



Intermediate-Acting (2 Doses)



Rapid- and Intermediate-Acting

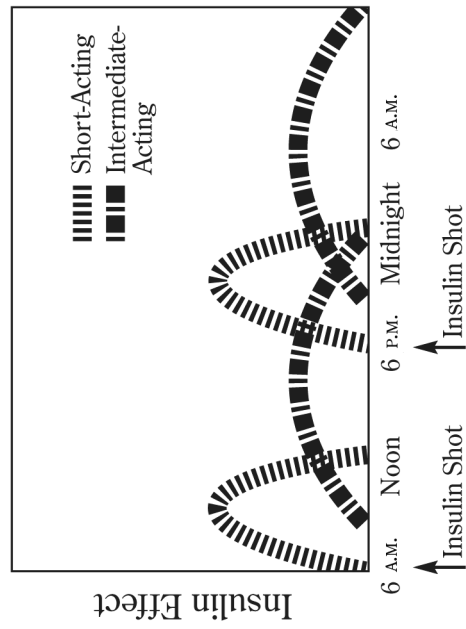


continued

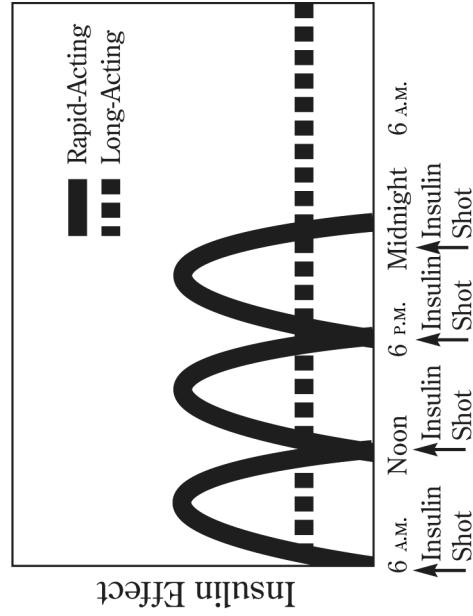
INSULIN PROGRAMS *continued*

Insulin Programs

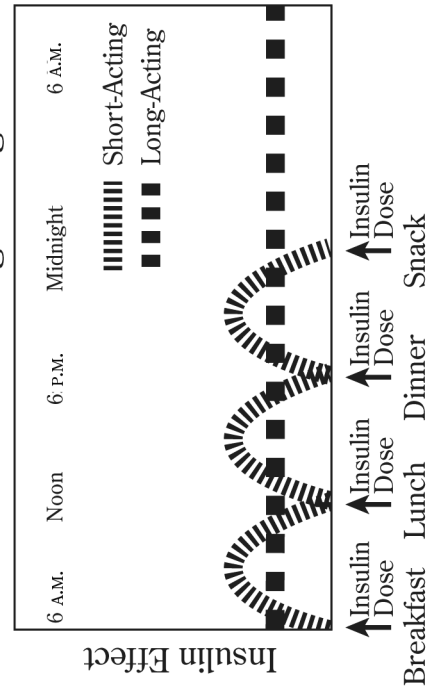
Short- and Intermediate-Acting



Rapid- and Long-Acting



Short- and Long-Acting

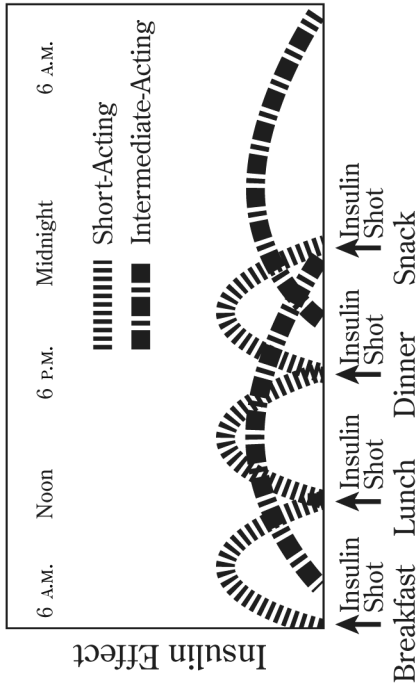


continued

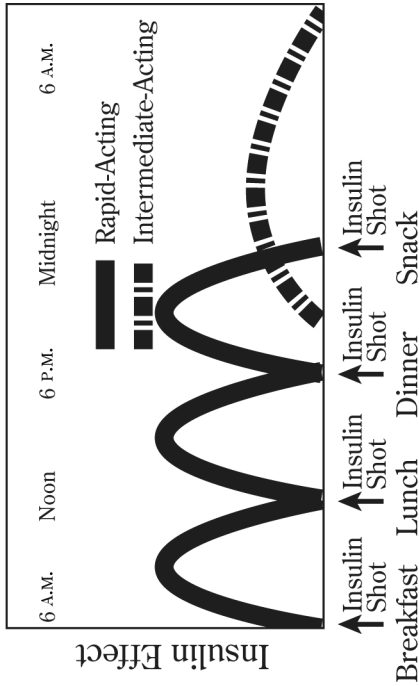
Insulin Programs

INSULIN PROGRAMS *continued*

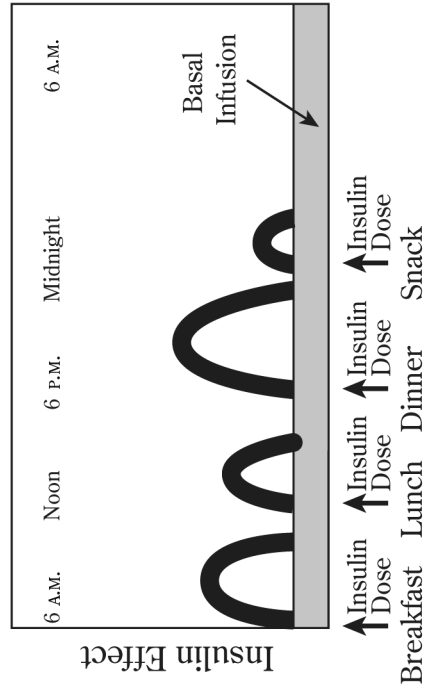
Short- and Intermediate-Acting



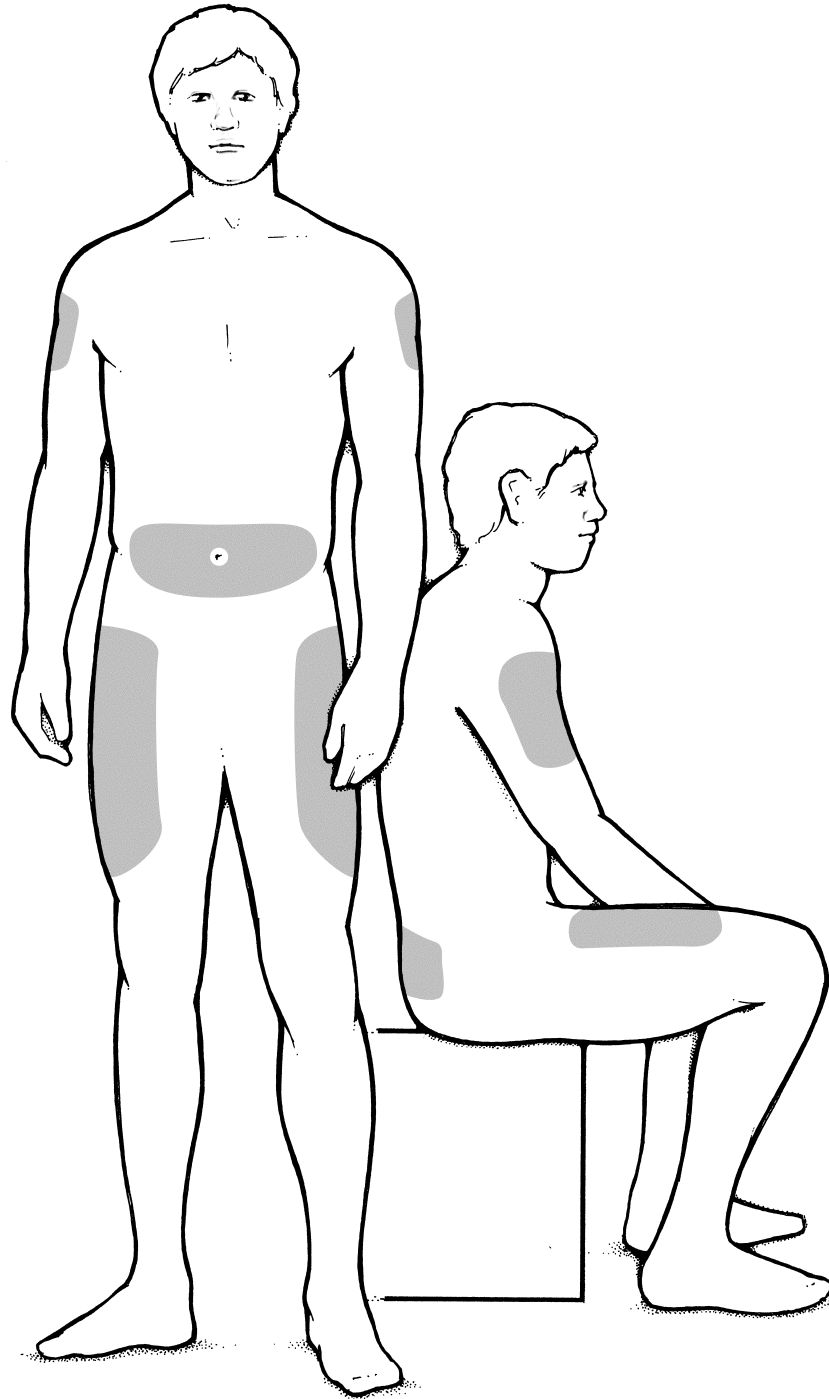
Rapid-Acting and Bedtime Intermediate-Acting



Continuous Subcutaneous Insulin Infusion



➔ Injection Sites



➔ Types of Insulin

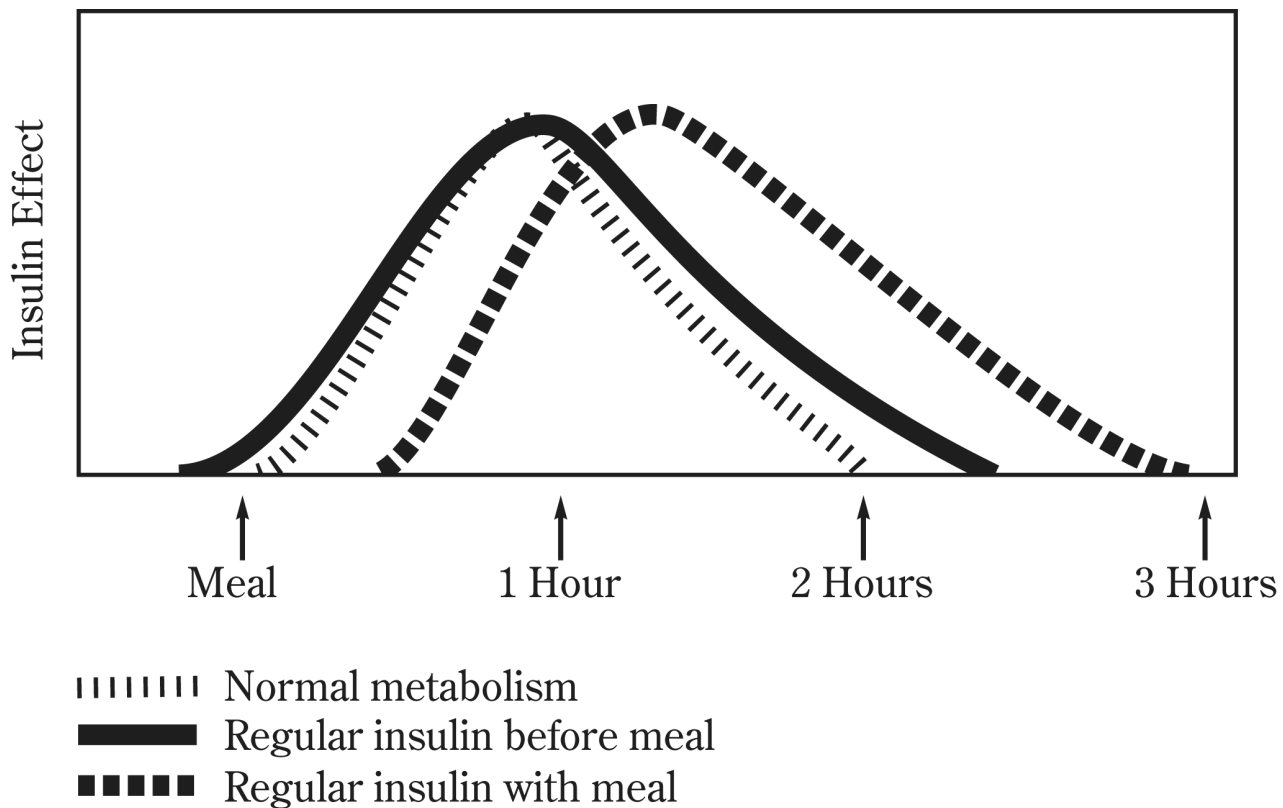
Type	Color	Effects	When to Take	When to Check Blood Glucose
Rapid-Acting Glulisine (Apidra) Lispro (Humalog U-100) (Humalog U-200) (Admelog) Aspart (Novolog, Fiasp)	Clear	Begins to work in 2–20 minutes, peaks in 30–90 minutes, and continues to work for 2–5 hours	5–15 minutes before eating Take Fiasp and Afrezza at the start of the meal	2 hours after the start of that meal
Afrezza (inhaled, U-100)	Powder			
Short-Acting Regular ReliOn R Novolin R Concentrated regular (U-500)	Clear	Begins to work in 30–60 minutes, peaks in 1–4 hours and continues to work for 5–8 hours	30 minutes before eating	2 hours after that meal and before the next meal
Intermediate-Acting NPH ReliOn N Novolin N	Cloudy	Begins to work in 1–3 hours, peaks in 4–12 hours and continues to work for 12–24 hours	Before breakfast and/or before supper or bedtime	Before breakfast and before supper

continued

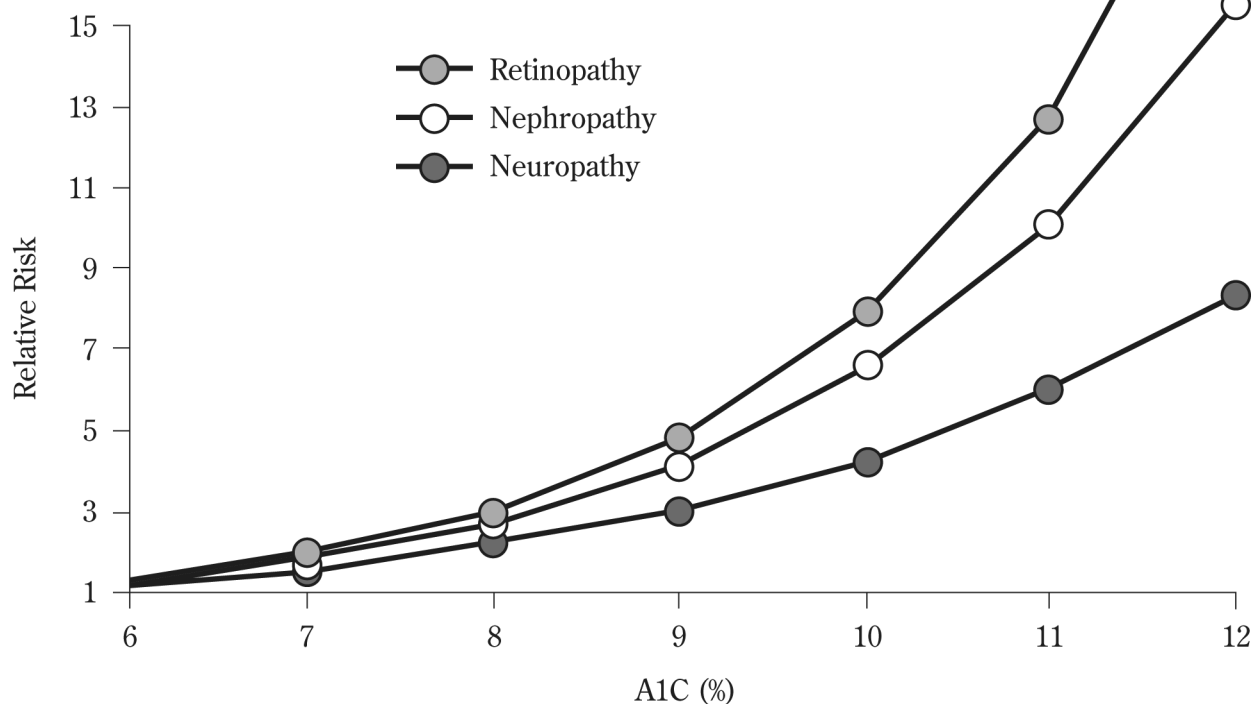
TYPES OF INSULIN *continued*

Type	Color	Effects	When to Take	When to Check Blood Sugar
Long-Acting Glargine (Lantus, Basaglar) Detemir (Levemir)	Clear	Begins to work in 1–2 hours and lasts for 18–24 hours	Same time each day; before bedtime and/ or breakfast	Before breakfast and at bedtime
Ultra-Long-Acting Degludec (Tresiba U-100) (Tresiba U-200) Glargine U-300 (Toujeo)	Clear	Begins to work in 1–6 hours and lasts for 36–42 hours	Once daily	Once daily
Insulin Mixtures 70/30; 75/25; 50/50 Rapid- or short- acting plus intermediate or ultra-long-acting plus rapid	Cloudy	Begins to work in 10–30 minutes and lasts up to 24 hours	Before breakfast and/or before supper	Before breakfast and before supper
Insulin + GLP-1 Insulin Mimetic				
Glargine + Lixisenatide (Soliqua 100/33)	Once a day	Up to 1 hour before first meal of the day		
Degludec +Liraglutide (Xultophy 100/3.6)	Once a day	Take with or without food		

➔ Timing of Regular Insulin and Meals

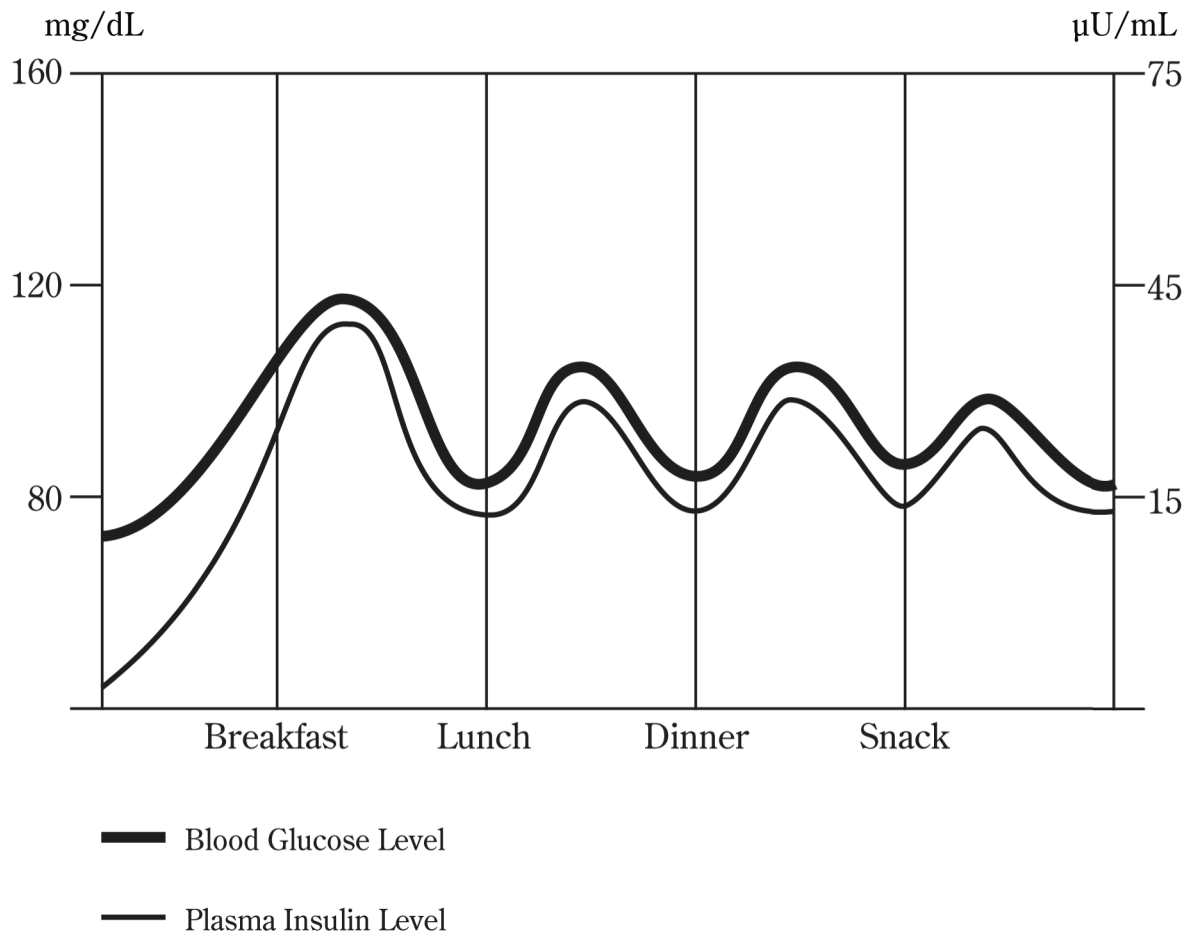


➔ Relationship of A1C to Risk of Complications

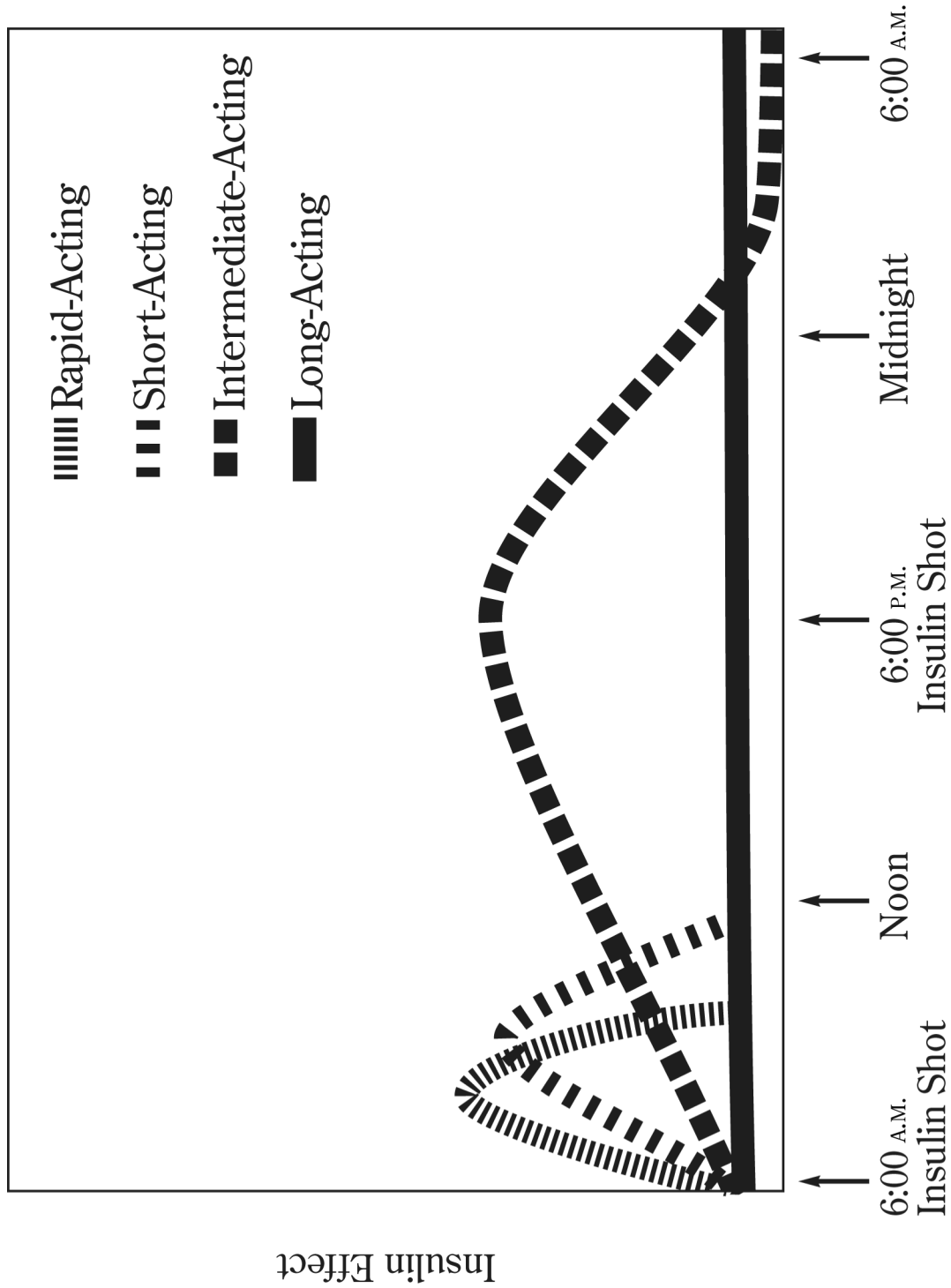


Source: Reprinted from *Endocrinology and Metabolism Clinics of North America*, Vol 25/2, Jay S. Skyler, MD, Diabetic Complications: The Importance of Glucose Control, 243-254, 1996, with permission from Elsevier.

➔ Normal Blood Glucose and Insulin Levels



➔ Insulin Action Times



#11

Personal Health Habits



STATEMENT OF PURPOSE

This session is intended to provide information about personal health habits that are important for people with diabetes and to suggest ways to incorporate these into daily life. Foot care, skin care, recognizing and preventing infections, dental care, and sleep habits are included.

PREREQUISITES

None.

OBJECTIVES

At the end of this session, participants will be able to:

1. state why people with diabetes need to be particularly attentive to their personal health habits;
2. recognize early signs and symptoms of infection;
3. list two components of dental care;
4. list four preventive foot care practices;
5. list three components of daily skin and foot care;
6. describe how to cut toenails safely;
7. state how to treat minor cuts and injuries;
8. state ways to improve circulation;
9. list symptoms of urogenital infections;
10. state reasons for need of increased frequency of health monitoring
11. identify one health or complications screening they will do; and
12. identify personal strategies to improve sleep habits.

CONTENT

Developing personal strategies to promote health and behavior change. Preventing, detecting, and treating acute and chronic complications.

#12**Long-Term Complications****STATEMENT OF PURPOSE**

This session is intended to provide information about the chronic microvascular (eyes, kidneys) and neuropathic (peripheral and autonomic) complications related to diabetes. Hypertension and cardiovascular complications are discussed in Outline 13, *Keeping Your Heart Healthy* (p. 353).

PREREQUISITES

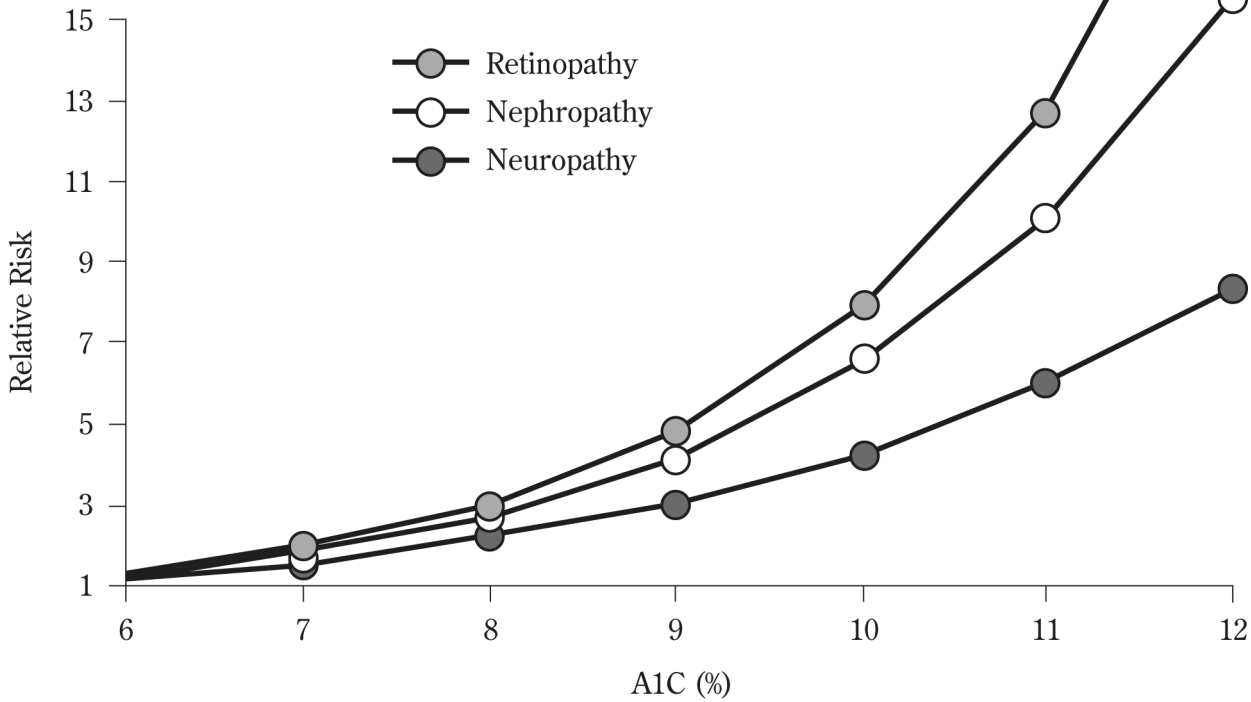
It is recommended that each participant have basic knowledge about diabetes and self-management, from either personal experience or from attending previous sessions. Readiness to learn about chronic complications should be carefully assessed before this content is presented. Keep in mind that facts are not as effective for overcoming fears as support, reassurance, and understanding.

OBJECTIVES

At the end of this session, participants will be able to:

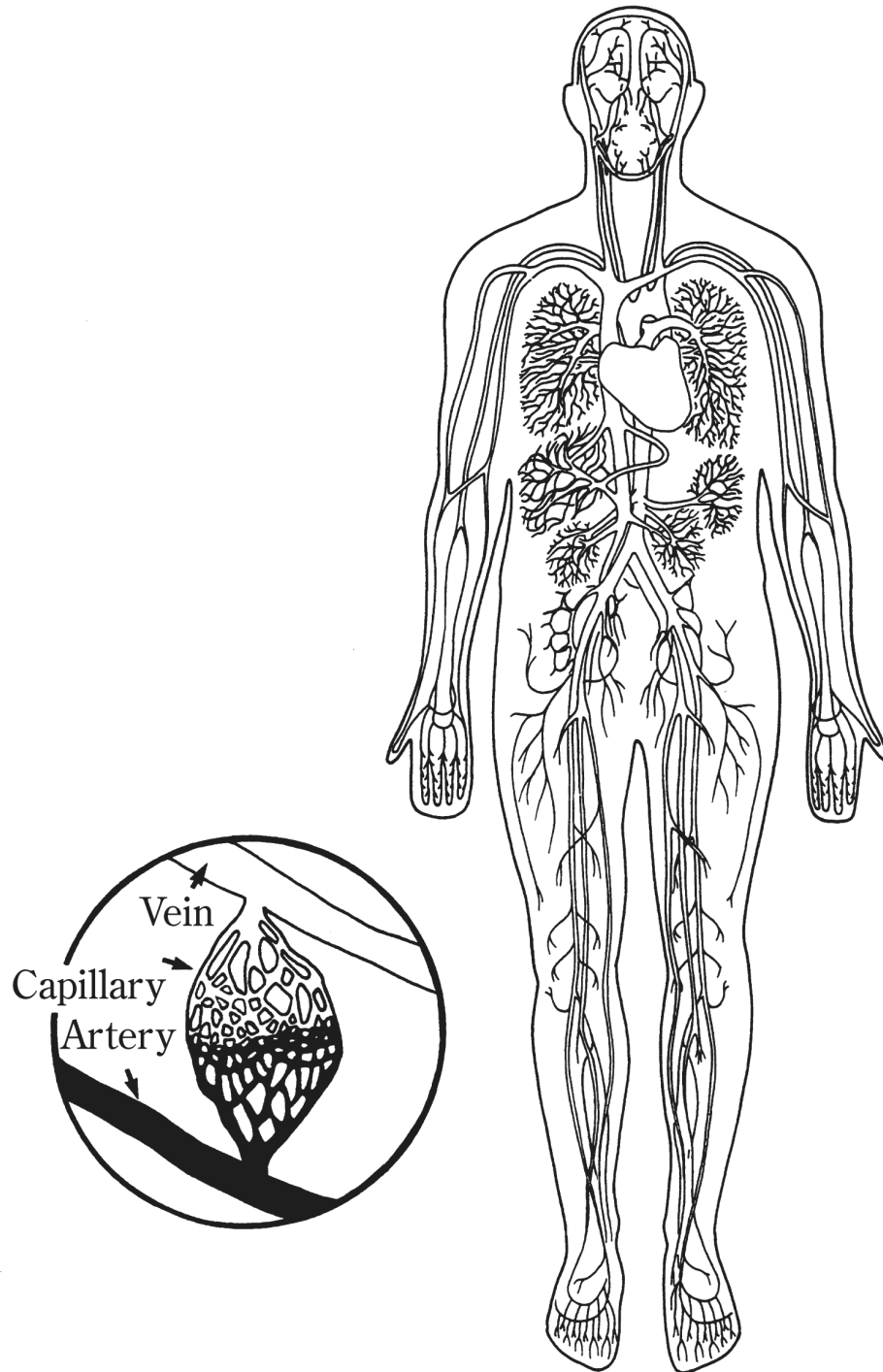
1. identify fears and concerns about the long-term complications;
2. identify personal risk factors for complications, treatment targets, and strategies to reduce risk;
3. describe the symptoms that may occur with diabetes retinopathy and with nephropathy;
4. list treatments for diabetic retinopathy and diabetes nephropathy;
5. state the value of recommended ophthalmologic and renal function assessments;
6. list consequences and symptoms of diabetes-related neuropathy;
7. list one treatment for neuropathy;
8. identify strategies to reduce personal risk factors;
9. schedule screening for complications as recommended; and
10. state that research into treatment for complications continues.

➔ Relationship of A1C to Risk of Complications

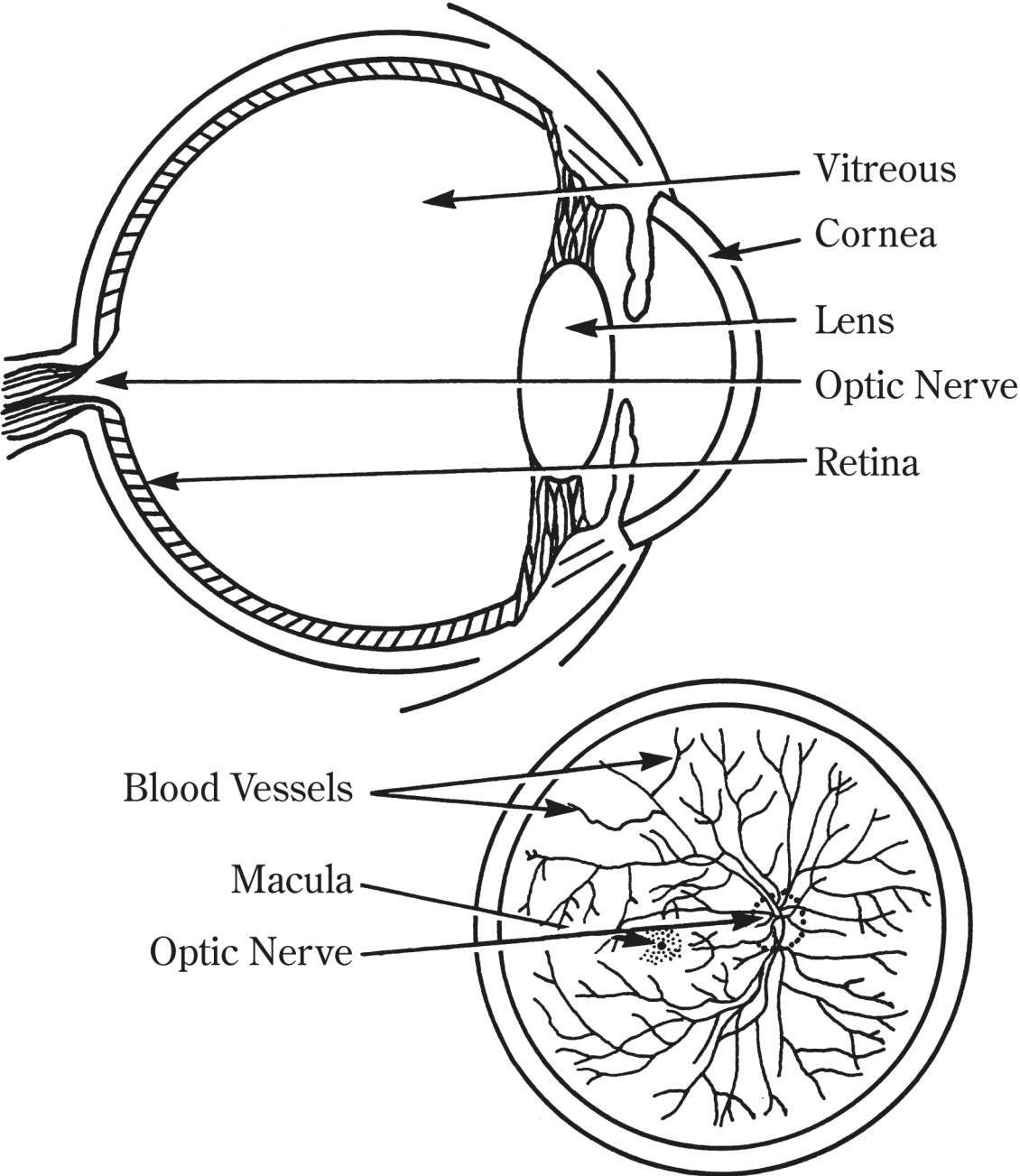


Source: Reprinted from *Endocrinology and Metabolism Clinics of North America*, Vol 25/2, Jay S. Skyler, MD, Diabetic Complications: The Importance of Glucose Control, 243-254, 1996, with permission from Elsevier.

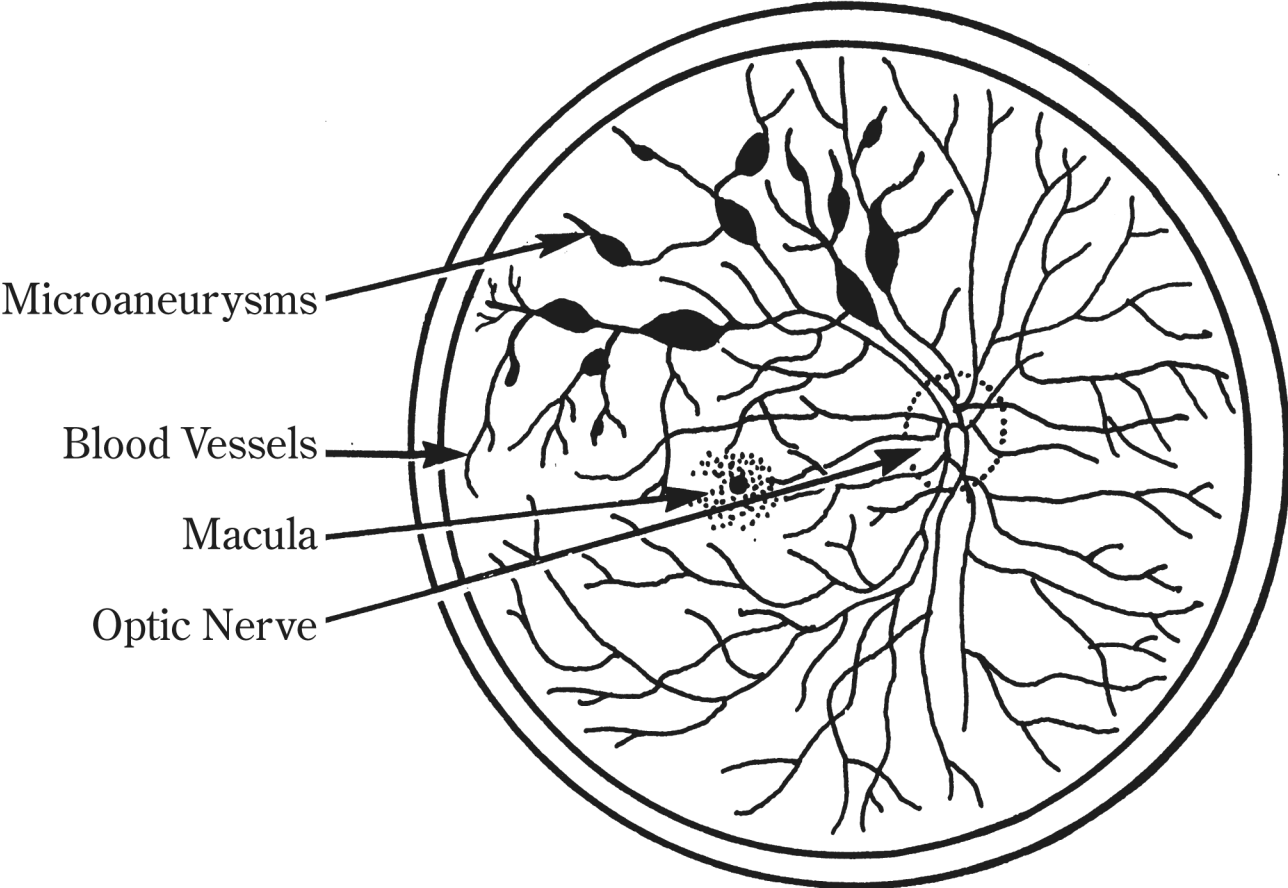
➔ Circulatory System



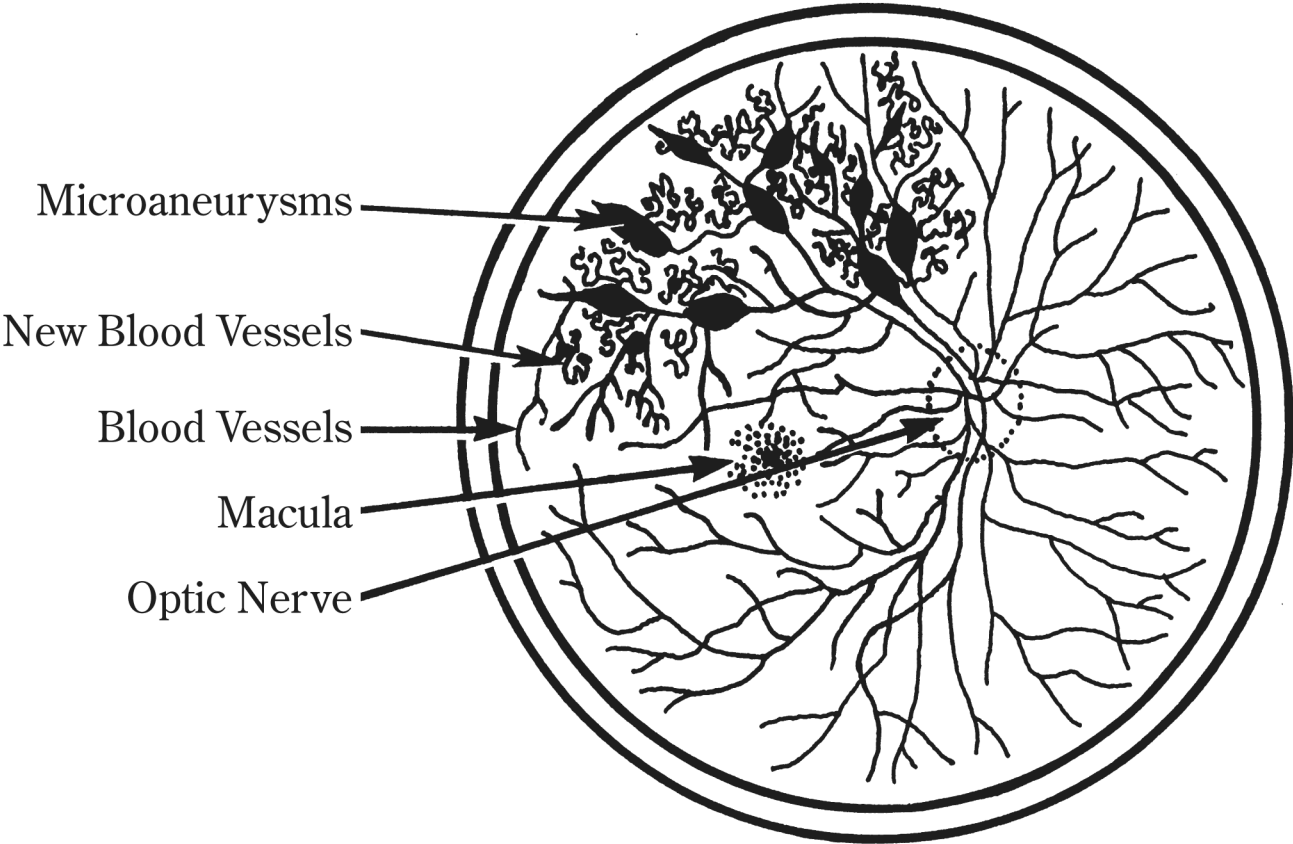
➔ Normal Eye



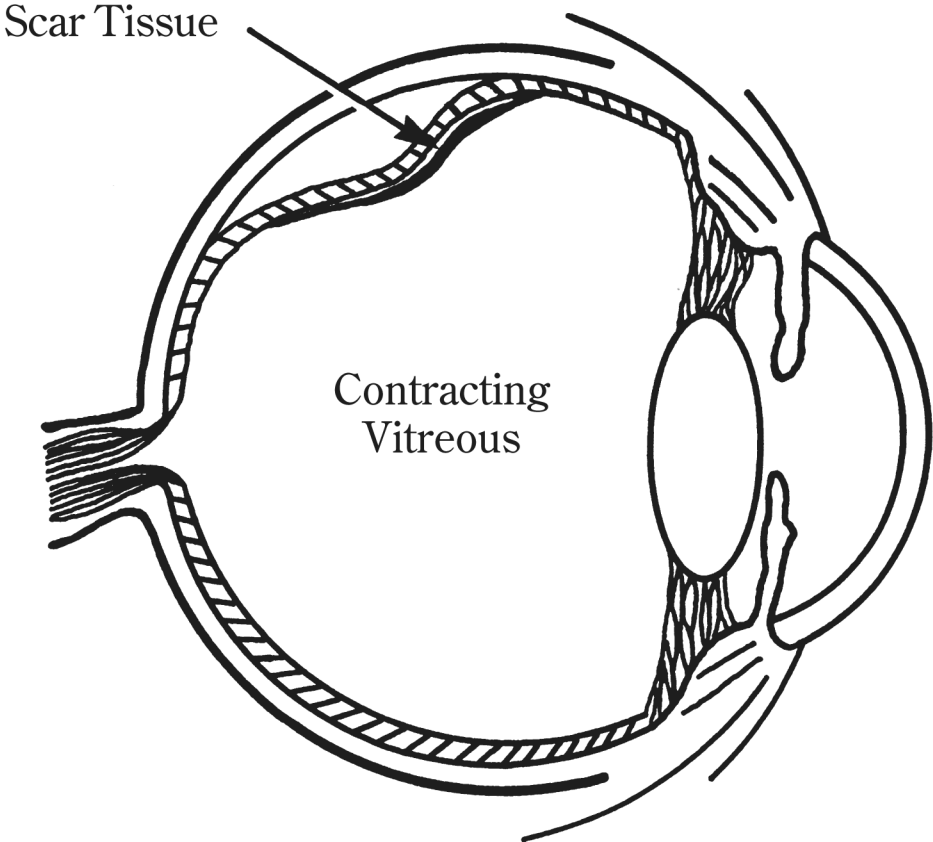
➔ Microaneurysms



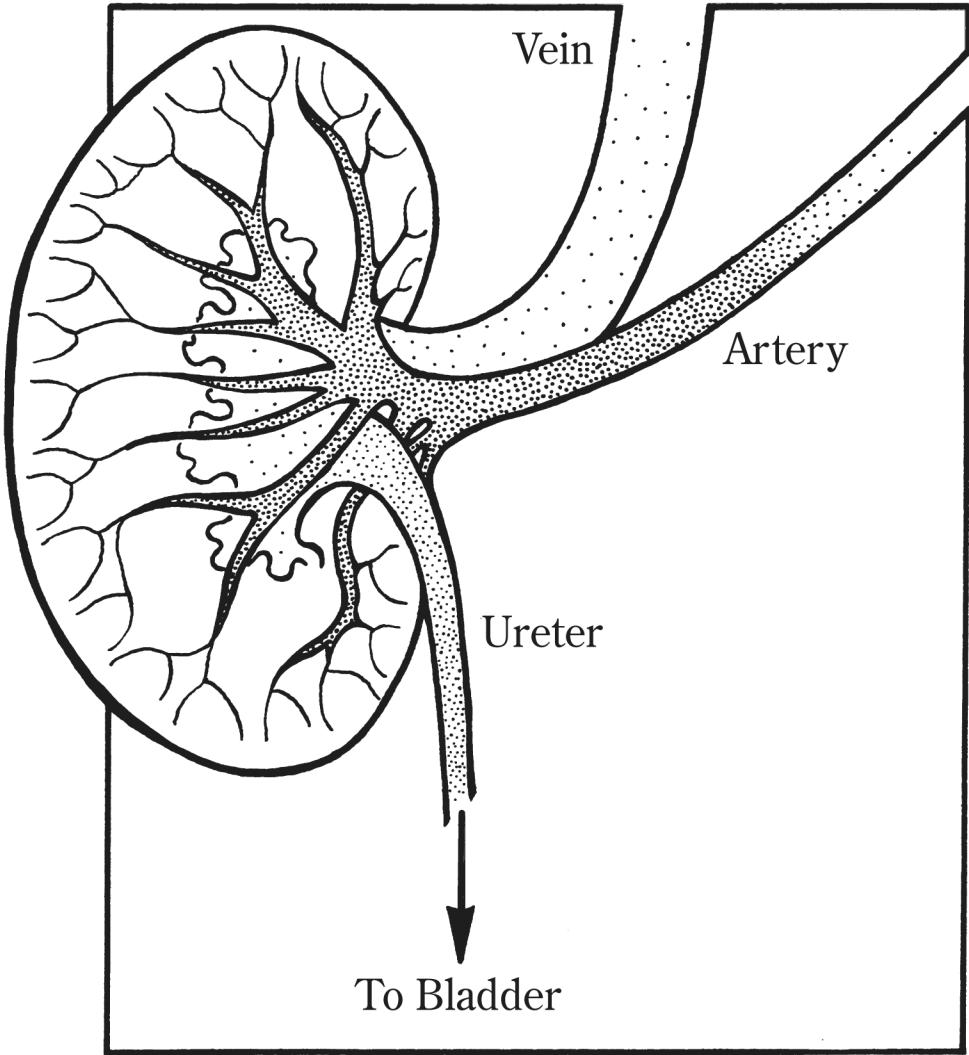
➔ Proliferative Retinopathy



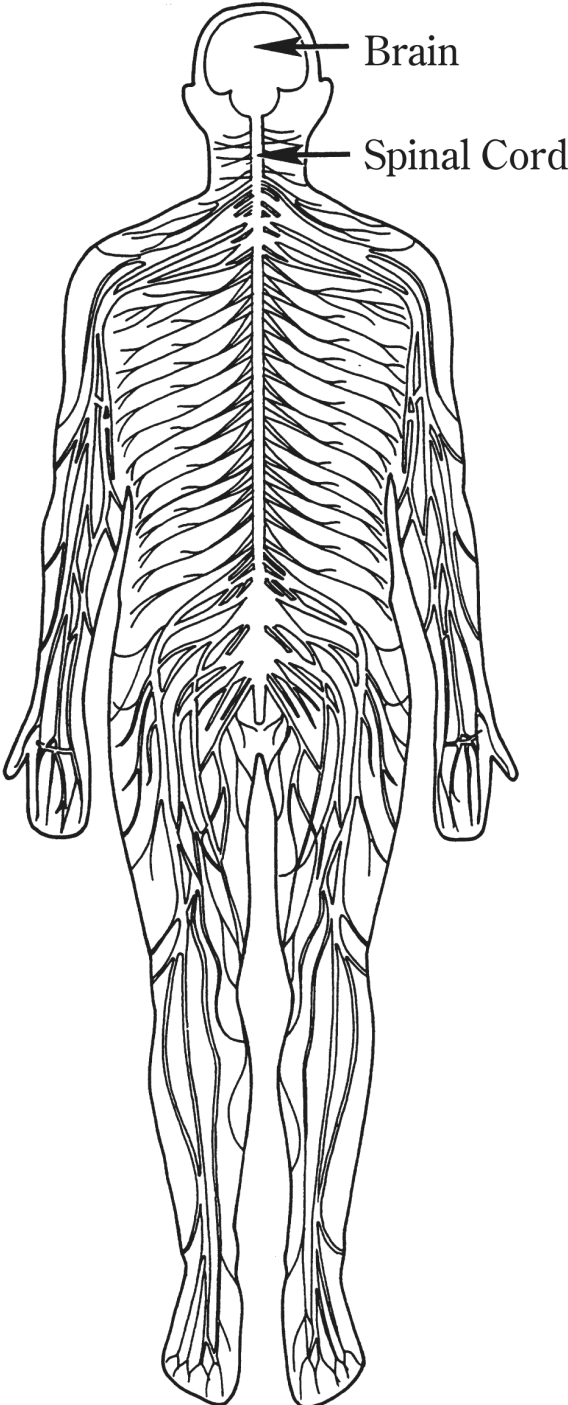
➔ Retinal Detachment



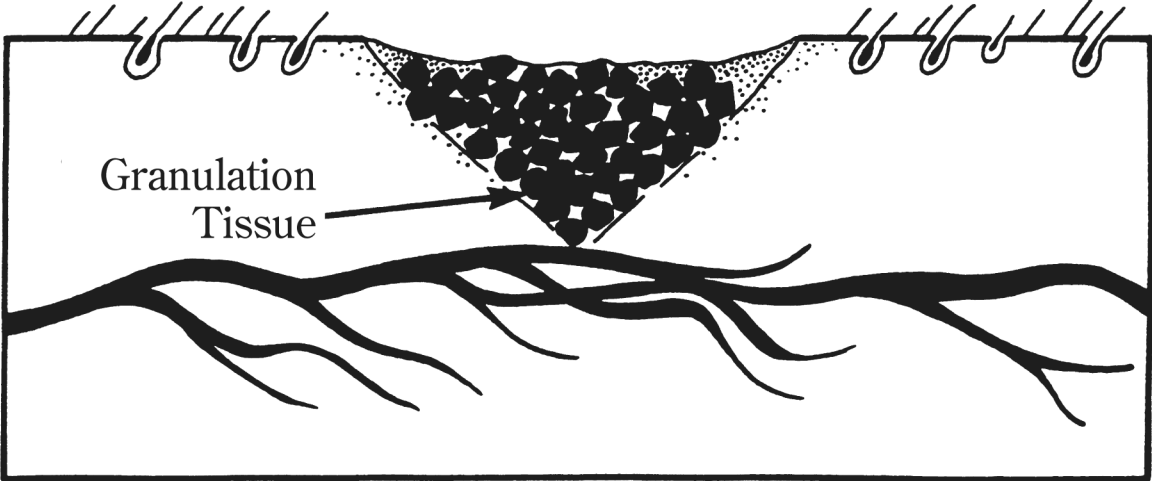
➔ Normal Kidney



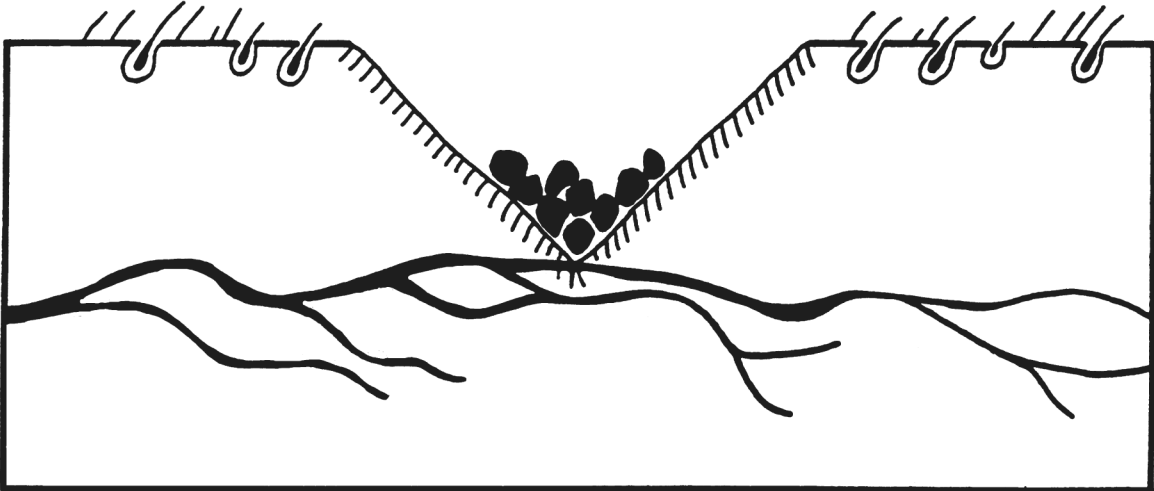
➔ Nervous System



➔ Wound Healing



Normal Circulation



Arteriosclerosis

#13**Keeping Your Heart Healthy****STATEMENT OF PURPOSE**

This session is intended to provide information about hypertension, the cardiovascular complications of diabetes, and strategies to lower risk factors and promote heart and vessel health.

PREREQUISITES

It is recommended that each participant will have attended Outline 4, *The Basics of Eating with Diabetes* (p. 65); Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99); and Outline 12, *Long-Term Complications* (p. 323), or have achieved those objectives.

OBJECTIVES

At the end of this session, participants will be able to:

1. identify fears and concerns about long-term cardiovascular complications;
2. identify personal risk factors for complications, treatment targets, and strategies to reduce risk;
3. describe the major consequences of large blood vessel disease;
4. list the risk factors and ways to decrease the risk for developing arteriosclerosis;
5. list personal strategies to manage blood pressure;
6. state the rationale for managing sodium in the diet;
7. identify two sources for each type of dietary fat;
8. explain the two types of dietary fiber and give two examples of foods high in each;
9. identify personal food habits or behaviors that may contribute to increasing risk for cardiovascular complications; and
10. identify personal barriers and benefits of reducing risks for cardiovascular complications.

CONTENT

Preventing long-term complications and incorporating nutritional management into lifestyle.

#14

Putting the Pieces Together



STATEMENT OF PURPOSE

This session is intended to help participants find and use information to deal with common situations, to provide information about resources available for people with diabetes, to obtain desired family support, and to obtain ongoing support to sustain chosen self-management strategies and activities.

PREREQUISITES

It is recommended that each participant have basic knowledge about diabetes and self-management, from either personal experience or attending previous sessions.

OBJECTIVES

At the end of this session, participants will be able to:

1. identify strategies to cope with a variety of diabetes-related issues and situations;
2. find resources appropriate for particular situations;
3. state how to obtain a driver's license;
4. list strategies for dealing with possible problems associated with social activities and with traveling;
5. list strategies for obtaining desired family support;
6. create an emergency or disaster preparedness kit; and
7. identify resources for obtaining desired ongoing self-management support.

CONTENT

Developing personal strategies to address psychosocial issues and concerns.
Developing personal strategies to promote health and behavior change.



..... Supplementary Content Outlines

#15**Stocking the Cupboard****STATEMENT OF PURPOSE**

This session is intended to help participants plan grocery lists that include the foods they need to use their meal plans discussed in Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99). Label reading and the use of food products modified to be low in sugar, fat, or salt (including the use of sugar and fat substitutes) are discussed.

PREREQUISITES

It is recommended that participants will have attended Outline 4, *The Basics of Eating with Diabetes* (p. 65), and Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99), or have achieved those objectives. Ask participants who have developed a meal plan to bring it to class. In addition bring commonly used food labels or ask participants to bring labels for a few items they like to eat.

OBJECTIVES

At the end of this session, participants will be able to:

1. plan a shopping list that includes the foods needed for their chosen meal plans and to meet personal goals;
2. name the sugar substitutes available and how they might use these in meal planning;
3. identify foods that they do and do not want to keep on hand; and
4. state the guidelines for choosing free foods and how they might use these in meal planning.

CONTENT

Incorporating nutritional management into lifestyle.

#16**Food and Weight****STATEMENT OF PURPOSE**

This session is intended to provide an understanding of how different foods affect body weight. Information about nutrients and food groups introduced in Outline 4, *The Basics of Eating with Diabetes* (p. 65), and Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99), will be reviewed and expanded to predict the caloric density of foods. Weight reduction is one way to reduce cardiovascular risks (elevated blood pressure, cholesterol, and triglyceride levels) and blood glucose levels. The information may be appropriate for those with prediabetes and for anyone interested in losing weight, in avoiding the weight gain that may occur with improved blood glucose levels and is common with insulin and insulin secretagogues, or in decreasing cardiovascular risk factors. Understanding caloric density also can be applied to weight-gain efforts or to maintaining calorie intake during periods of poor appetite. The focus of this session is on helping participants identify and develop strategies to improve food choices and decisions in order to reach personal weight goals.

PREREQUISITES

It is recommended that participants will have attended Outline 4, *The Basics of Eating with Diabetes* (p. 65), and Outline 5, *Planning Meals and Carbohydrate Counting* (p. 99), or have achieved those objectives. It is also helpful if participants bring a completed food log.

OBJECTIVES

At the end of this session, participants will be able to:

1. name the basic food groups and the nutrients in each group;
2. name the nutrient that supplies the most calories;
3. give examples of foods high in calories and low in calories;
4. identify triggers for emotional eating and strategies to address them; and
5. identify one action step they can take toward achieving their weight goals.

CONTENT

Incorporating nutritional management into lifestyle.

#17**Sexual Health and Diabetes****STATEMENT OF PURPOSE**

This session is intended to provide information about sexual health and sexual function and how these can be affected by diabetes.

PREREQUISITES

It is recommended that participants have a basic knowledge about diabetes and its long-term complications, either from personal experience or from attending previous sessions.

OBJECTIVES

At the end of this session, participants will be able to:

1. express greater insight into their own sexuality;
2. state ways to initiate discussion about sexual concerns with people who are important to them and with members of their healthcare team;
3. identify effective methods of contraception (if applicable);
4. describe sexual functioning for either men or women that can be affected by diabetes;
5. understand their own emotional response to sexual health issues; and
6. identify ways to get more information about sexual function and possible therapies.

CONTENT

Preventing, detecting, and treating chronic complications. Developing personal strategies to address psychosocial issues and concerns.

MATERIALS NEEDED**VISUALS PROVIDED**

- 17-1. Sexual Response Cycle—Physical Changes
- 17-2. Changes in Sexual Function with Aging
- 17-3. Normal Menstrual Cycle
- 17-4. Contraceptive Methods
- 17-5. Penile Prosthesis—Semirigid
- 17-6. Penile Prosthesis—Inflatable

ADDITIONAL ITEMS

- Board and markers
- Samples of products available used in treating sexual dysfunction
- Local or reliable Internet resources

#19**Insulin Pump Therapy****STATEMENT OF PURPOSE**

This session is intended to provide information about what continuous subcutaneous insulin infusion therapy is, what can be expected from it, and how to care for a pump. Specific information should be provided using the pump chosen by the participant following the manufacturers' instructions.

PREREQUISITES

It is recommended that participants have an understanding of diabetes, insulin therapy, carbohydrate counting and carbohydrate-to-insulin ratios, and self-management and a desire to explore insulin pump therapy.

OBJECTIVES

At the end of this session, participants will be able to:

1. define insulin pump therapy (continuous subcutaneous insulin infusion);
2. state the purpose of pump therapy;
3. state three personal advantages and barriers for pump therapy and continuous glucose monitoring (CGM) versus conventional and intensive therapy and strategies to overcome barriers;
4. define basal rate and bolus and correction dose;
5. state that the infusion site and tubing should be changed every 48–72 hours;
6. define both high and low blood glucose and the corrective action to take for each;
7. state two ways in which activities of daily living can be modified to accommodate wearing a pump;
8. identify personal feelings, barriers, and benefits for using pump therapy and CGM;
9. demonstrate how to prepare the pump for insulin delivery;
10. demonstrate how to adjust the basal rate and bolus dose;
11. demonstrate how to insert the needle into the subcutaneous tissue;
12. demonstrate how to disconnect and reconnect the syringe or cartridge and tubing;
13. state three symptoms of infection at the infusion site and corrective actions to take;



.....

Support Materials



Assessment of Diabetes Management



Name: _____ Date: _____

Date of Birth: ___/___/___ Age: _____ Gender: F M Other

Ethnic Background: White/Caucasian Black/African American Hispanic

Native American/Alaska Native Asian/Pacific Islander

What language do you prefer? English Other _____

Address: _____

Street

City

ST

Zip

Phone: Home (____) _____ Work: (____) _____ Cell: (____) _____

1. What type of diabetes do you have? Type 1 Type 2 Prediabetes
 GDM Don't know

2. Year/age you were told you had diabetes: _____/_____

3. Do you take diabetes medicines? Yes (check all that apply below) No
 Diabetes pills Insulin injections Other injectables
 Combination of pills and injections

During a typical month, about how often do you miss taking your diabetes medicines?

_____ Reasons? _____

4. Do you have other health problems? Yes No

Please list other conditions: _____

5. Do you take other medicines? Yes No

Please list your other medicines: _____

6. What is the last grade of school you completed? _____

7. Are you currently employed? Yes No

What is your job? _____

8. Marital Status: Single Married Divorced Widowed

continued

9. How many people live in your household? _____

How are they related to you? _____

10. From whom do you get support to manage and cope with your diabetes?

- Family Coworkers Healthcare providers
- Support group or diabetes “buddy” Social media No one

11. Please state whether you agree, are neutral, or disagree with the following statements:

- I feel good about my general health: Agree Neutral Disagree
- My diabetes interferes with other aspects of my life: Agree Neutral Disagree
- My overall level of stress is high: Agree Neutral Disagree
- I often feel as if I am failing in managing my diabetes: Agree Neutral Disagree
- I often feel overwhelmed by the demands of living with diabetes: Agree Neutral Disagree
- I feel I will get long-term complications, no matter what I do: Agree Neutral Disagree

12. How do you handle the stress in your life? Your feelings about diabetes? _____

13. What concerns you most about your diabetes? _____

14. What is hardest for you in caring for your diabetes? _____

15. What are your thoughts or feelings about this issue (e.g., frustrated, angry, guilty)?

16. What are you most interested in learning from these diabetes education sessions?

continued

17. Do you have any cultural or religious observances, practices, or beliefs that affect how you care for your diabetes? Yes No

Please describe:

18. Do you use a specific meal plan? Yes No

If yes, please describe: _____

About how often do you use this meal plan? Never Seldom Sometimes
 Usually Always

Do you read and use food labels? Yes No

Diet restrictions:

Salt Fat Fluid Gluten None Other _____

List a sample of your meals for a typical day:

Time: _____ Breakfast: _____

Time: _____ Lunch: _____

Time: _____ Dinner: _____

Time: _____ Snack: _____

Time: _____ Snack: _____

19. Do you do your own food shopping? Yes No Cook your own meals? Yes No
 How often do you eat out? _____

20. Do you drink alcohol? Yes No Type: _____

How many drinks: Per day _____ Per week _____ Occasionally _____

21. Do you use tobacco: Cigarette Pipe Cigar Chewing E-cigarette None
 Quit—How long ago? _____

22. Do you exercise regularly? Yes No Type: _____

How often: _____

My exercise routine is: Easy Moderately Intense Very Intense

23. Do you check your blood glucose? Yes No

Typical or usual blood glucose range: _____ to _____

continued

How often: Once a day 2 or more/day 1 or more/week Occasionally

When: Before meals 2 hours after meals Before bedtime CGM

What is your target blood glucose range? _____

How would you describe your usual results over the past 2 weeks? _____

24. In the last month, how often have you had a low blood glucose reaction?

Never Once One or more times/week

What are your symptoms? _____

How do you treat your low blood glucose? _____

25. Can you tell when your blood glucose is too high? Yes No

What do you do when your blood glucose is high? _____

26. Check any of the following you have had in the last 12 months:

- Dilated eye exam Urine test for protein Dental exam Foot exam—self
- Foot exam—healthcare professional Blood pressure Weight Cholesterol
- A1C Flu shot Pneumonia shot

27. In the past 12 months, have you: Gone to the emergency room (ER) Been admitted to a hospital

Was the ER visit or hospital admission diabetes-related? Yes No

28. Do you have any of the following: Eye problems Kidney problems Dental problems

- Numbness/tingling/loss of feeling in your feet High blood pressure High cholesterol
- Sexual problems Depression

29. Have you ever attended a formal diabetes program or classes?

Yes No How long ago? _____

Where do you get most of your information about diabetes and health?

30. In your own words, what is diabetes? _____

31. How do you learn best? Listening Reading Observing Doing

32. Do you have any difficulty with: Hearing Seeing Reading Speaking

Explain any checked: _____

33. Do you use computers or a smart phone to: Email Look for health and other information Text

34. **Pregnancy:**

Are you: Premenopausal Menopausal Postmenopausal N/A

Are you pregnant? Yes—When are you expecting? _____

No—Are you planning on becoming pregnant? _____

Have you been pregnant before? Yes No

Do you have any children? Yes—Ages: _____ No

Are you aware of the impact of diabetes on pregnancy? Yes No

Are you using birth control? Yes—Please specify: _____ No

_____*Please do not write below this line*_ _____

EDUCATOR ASSESSMENT SUMMARY: _____

- Education Goals and Plan:** Diabetes Disease Process and Treatment Options
 Personal Coping Strategies Solving Problems and Behavior Change
 Nutritional Management Physical Activity Medication Use Monitoring
 Self-Management Acute Complications Chronic Complications Ongoing Support

Date: _____ Educator Signature: _____

Date: _____ Educator Signature: _____

Diabetes Self-Management Education Record



Participant Name: _____ **Referring Provider:** _____

Assessment/Evaluation Ratings: 1 = needs instruction 2 = needs review 3 = comprehends key points
4 = demonstrates competency NC = not covered N/A = not applicable

Topics/ Learning Objectives	Pre-session Assessment	Initial Education	Review	Post-session Evaluation	Comments
<p>Diabetes disease process and treatment options <i>Define diabetes and identify own type of diabetes; list 3 options and stages for treating type 2 diabetes; identify the importance of ongoing diabetes education and support</i></p>					
<p>Developing personal healthy coping strategies to address psychosocial issues and concerns <i>Define diabetes-related distress, life stresses, and clinical depression; describe feelings about living with diabetes; identify the emotional burden of living with diabetes; identify support needed and network</i></p>					
<p>Developing personal strategies to solve problems and make behavioral changes <i>Identify strategies to assume personal responsibility for diabetes self-management; identify a personally meaningful long-term diabetes goal; develop I-SMART behavioral goals and action plans</i></p>					

continued

Topics/ Learning Objectives	Pre-session Assessment	Initial Education	Review	Post-session Evaluation	Comments
<p>Incorporating nutritional management into lifestyle <i>Identify 2 reasons they would use a meal plan; identify personal emotional and cultural nutritional influences; describe the effect of type, amount, and timing of food on blood glucose; list 3 methods for planning meals or patterns</i></p>					
<p>Incorporating physical activity into lifestyle <i>State the effects of exercise on blood glucose levels and emotions; develop a personal exercise plan and strategies to overcome barriers</i></p>					
<p>Using medications safely and for maximum effectiveness <i>State the name and purpose of their diabetes medicines, action, and side effects; state how to evaluate the effectiveness of their medicines; identify strategies to be faithful in taking their medicines</i></p>					

continued

Topics/ Learning Objectives	Pre-session Assessment	Initial Education	Review	Post-session Evaluation	Comments
<p>Monitoring blood glucose, interpreting, and using self-generated health data for self-management decision-making and problem-solving <i>Identify recommended blood glucose targets and personal targets; identify 4 factors that can affect blood glucose readings; identify strategies to effectively use blood glucose monitoring in daily self-management</i></p>					
<p>Preventing, detecting, and treating acute complications <i>List symptoms of hyper- and hypoglycemia; describe how to treat low blood glucose and actions for lowering high blood glucose levels; develop a personal sick-day plan</i></p>					
<p>Preventing, detecting, and treating chronic complications <i>Define the natural course of diabetes and describe the relationship of blood glucose levels to long-term complications of diabetes; identify fears and concerns about long-term complications</i></p>					

continued

Identified barriers to learning and self-management: _____

Educational method: _____

Education materials and equipment provided: _____

DSMES support plan: _____

Long-term behavioral goals: _____

I-SMART action plans: _____

Participant Follow-Up Record



Participant Name: _____ Date: _____

Reassessment:

Ratings: 1 = needs instruction 2 = needs review 3 = comprehends key points
 4 = demonstrates competency N/A = not assessed

Topic	Reassessment Rating	Comment/Re-education
Disease Process and Treatment Options		
Healthy Coping		
Problem-Solving and Behavioral Changes		
Nutritional Management		
Physical Activity		
Medication Use		
Monitoring and Using Results		
Acute Complications		
Chronic Complications		
Personal Interests and Concerns		

Evaluation:

Ratings: 0% = never 25% = occasionally 50% = half the time
 75% = most of the time 100% = always NC = not chosen

Long-Term Goal Chosen	Evaluation Rating	Comment
Healthy Eating		
Being Active		
Taking Medication		
Monitoring		
Problem-Solving		
Reducing Risks		
Healthy Coping		

New long-term goal: _____

I-SMART action plan: _____

Follow-up/DSMES plan: _____

Educator signature: _____

Curriculum Review Guide



Content/Topic: _____

Date of last review: _____

Date of current review: _____

Curriculum Review Rubric

Assessment Activities:

Does your CQI (continuous quality improvement) activity suggest any need for curriculum revision?	Yes	No
Do your program outcomes suggest any need for curriculum revision?	Yes	No
Are there any recurrent participant complaints or feedback regarding a particular topic in the curriculum?	Yes	No
Has there been any change in participant demographics?	Yes	No

Evaluation of New Information:

Are there any new research findings or publications about this topic?	Yes	No
---	-----	----

Summary of Findings:

For any “yes” given, provide details:

Proposed Revision:

Date of approval: _____

Date of implementation: _____

Sample Educational Objectives



The following sample illustrates how you can cross-reference your educational objectives to the curriculum content of *Life with Diabetes*. For recognition requirements, please visit <https://professional.diabetes.org/diabetes-education> or call 1-800-DIABETES.

Learning and Skill Objectives	Outline	Learning and Skill Objectives	Outline
A. Overview/Understanding of Diabetes 1. States: a. excess glucose in blood due to too little insulin in relationship to body needs b. diabetes a lifelong condition requiring treatment c. which type of diabetes they have	1	3. States why this is a personally important and meaningful goal. 4. Identifies personal I-SMART action plans to reach long-term goals. 5. Evaluate what was learned through the I-SMART action experience. 6. Use what was learned in creating next I-SMART action plan.	
B. Healthy Coping 1. Identifies self as having diabetes. 2. Identifies thoughts, feelings, and areas of concern about diabetes. 3. Identifies personal meaning of diabetes. 4. Identifies signs and symptoms of diabetes-related distress. 5. Identifies one strategy for coping with diabetes distress. 6. Identifies effects of stress on blood glucose. 7. Identifies signs, symptoms, and treatment for depression.	2	D. Family and Social Support 1. Identifies desired level of support from family and friends. 2. Informs others of ways they can be supportive. 3. Identifies local sources for diabetes support.	2, 3 14
C. Making Decisions, Solving Problems, and Changing Behavior 1. Identifies decision-making and problem-solving strategies. 2. Identifies meaningful personal long-term or LIFE diabetes care goals.	3	E. Nutrition and Meal Planning 1. States: a. reasons for meal planning b. rationale for timing of meals c. rationale for reaching and maintaining desirable weight d. rationale for eating less fat e. awareness of types of fat and effects of each f. awareness to match food choices with activity changes 2. Has a meal plan.	4 4, 16 4, 13 4, 5 5

continued