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Creating a Comprehensive Diabetes Self-Management Resource For the Metro-Atlanta Area: Diabetes Self-Management Workbook, Diabetes Association of Atlanta

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An abstract of
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Abstract

Creating a Comprehensive Diabetes Self-Management Resource For the Metro-Atlanta Area: Diabetes Self-Management Workbook, Diabetes Association of Atlanta

By Katherine R. George

Health literacy is a person's ability to function in the healthcare system, and includes the ability to understand and process health information. The principles of universal precautions and plain language are two key responses in the effort to address health literacy issues. Using these two principles, I created a workbook for use in the Diabetes Self-Management Education (DSME) classes offered by the Diabetes Association of Atlanta (DAA).

More than 300,000 people in the 13 metro-Atlanta counties served by DAA have been diagnosed with diabetes, a chronic condition for which most of the burden of management falls on the patient. Diabetes also puts one at a higher risk for a variety of other chronic conditions. Because diabetes is a chronic condition mostly managed by the patient, it is the ideal perspective from which to address the issue of health literacy and its effect on health outcomes.

DSME focuses on equipping people with the knowledge and skills that would help participants manage their diabetes for the best possible health outcomes. However, this self-management ideal is often hindered by low levels of health literacy among people with diabetes. An estimated 55% of patients with diabetes have marginal or inadequate levels of health literacy.

DAA holds monthly DSME workshops across the metro-Atlanta region. The current workbook (version 1.9) was designed in the late 1990s and is severely outdated. Using a survey developed for DAA, I conducted a pre-project assessment of the current workbook used in DAA's DSME classes. I developed a new workbook based on feedback from the pre-project assessment and research on the latest recommendations for diabetes self-management, with an especial emphasis on a low-literacy audience. Then I assessed the clarity, relevance, and utility of the new workbook using the principles of pre-testing.

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Introduction

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An estimated 20.9 million people in the United States have been diagnosed with diabetes (1), a chronic condition for which most of the burden of management falls on the patient (2). DSME focuses on equipping people with the knowledge and skills that would help patients manage their diabetes for the best possible health outcomes. However, this self-management ideal is often hindered by low levels of health literacy among people with diabetes.

Background

Health Literacy

Health literacy is often thought of simply as a person's ability to read health information, but the concept is much broader than that. As defined in the Department of Health and Human Services Healthy People 2010 goals, health literacy is "the degree to which individuals have the capacity to obtain, process, and understand basic health information and services needed to make appropriate health decisions" (3). This includes not only the ability to read and understand health information, but also the ability to

navigate a complex healthcare system, the ability to seek health information and assess information quality, and the ability to read and understand nutrition labels and prescription bottles.

Tests of health literacy measure skills such as reading comprehension, medical jargon recognition, and numeracy (i.e., a person's ability to understand numbers and perform basic calculations) (4, 5). Health literacy and general literacy are related, but health literacy requires additional skills that are not covered under general literacy assessments, including the ability to navigate the healthcare system (e.g., ability to compare healthcare insurance plans and make an informed choice) and knowledge of the human body (6, 7). Health literacy is highly correlated with both general literacy and educational attainment, but also includes unrelated factors like unfamiliar terms and stress. Therefore, people of all ages, races, and educational backgrounds can have low levels of health literacy (8).

Scope of the Problem

People with basic or below basic levels of literacy are unable to perform simple calculations (e.g., calculations relating to nutrition labels) or summarize and make inferences about a document or prose text (e.g., consent forms, informational pamphlets). According to the National Assessment of Adult Literacy (NAAL), 36% of American adults have basic or below basic levels of health literacy. Only 12% have what is considered to be a proficient level of health literacy (9).

People with low levels of health literacy know little about their health condition, are less likely to administer self-care behaviors, have worse health outcomes, and are

hospitalized at higher rates (6, 10, 11). This is not only bad for the patient, but also for the healthcare system as a whole: it is an inefficient use of both human and monetary resources (7). In 2007, inadequate health literacy was associated with an estimated $116 billion in societal costs (12). A patient with very low literacy costs Medicaid almost $8,000 more per year than a patient with higher literacy after controlling for age, ethnic group, health status, and education level (13).

Plain Language

One leading method for addressing the health effects of low health literacy is the principle of plain language. Although health literacy is much broader than simply the ability to read and process a provider's instructions, research suggests that language complexity is a key factor in health outcomes (10). Using a plain language approach — that is, avoiding jargon, focusing on key messages and repeating, and using a conversational tone — helps improve a patient's understanding (14).

Plain language is not about "dumbing down" health information, but about communicating in a way that is meaningful and helpful for the patient (10). Not only can better health communication improve health outcomes, but it may also improve the patient's experience and satisfaction with service (15). Processing a lot of information under stress, as is often the case in medical settings, tends to reduce understanding and retention. Therefore, even people with high levels of literacy often prefer communication materials written at lower literacy levels (16). As more responsibility in healthcare is shifting to the patient, it is vital that providers present information in a meaningful and helpful way.

Universal Precautions

General stigma associated with limited literacy may cause a patient to disguise their inadequacy (e.g., claiming to have forgotten their glasses to cover for an inability to read a brochure) (17). In fact, one study found that 67% of patients with low literacy skills had never even admitted their difficulty in reading and understanding written materials to their spouse (18). Since patients are skilled at hiding their deficiencies, it is not always easy for practitioners to recognize a person with low health literacy (8, 9). In an effort to address this, public health practitioners are now arguing for a universal precautions approach: "structuring healthcare services to minimize risk for everyone when it is unclear which patients may have difficulty" (16).

Current tests to detect literacy levels are cumbersome, and there is concern that they could increase stigma surrounding literacy issues. There is some evidence that shame can prevent patients from asking questions about their care, thus potentially leaving the provider with the wrong impression that the patient understands everything the provider is saying (18). The universal precautions approach is one tool to ensure everyone receives health information with dignity and in a way they can understand.

Health Literacy and Diabetes

Diabetes is a chronic disease that is generally managed with healthy eating, exercise, and medication. Managing diabetes includes careful monitoring to ensure blood glucose levels are within the patent's target range. It requires a basic understanding of the endocrine system — including how food, medications, and physical activity affect

blood glucose levels — and math skills. Diabetes also puts one at a higher risk for a variety of other chronic conditions, including heart disease and stroke, blindness, kidney disease, and nervous plus vascular system diseases which can result in amputations (12). Comprehensive diabetes self-management includes taking steps to reduce the risk for these complications, adding yet another layer to the complexity of diabetes management. Because diabetes is a chronic condition mostly managed by the patient, it is the ideal perspective from which to address the issue of health literacy and its effect on health outcomes.

Knowledge about diabetes is related to health literacy level (19). Patients with low health literacy know significantly less about their chronic condition than patients with adequate health literacy, regardless of self-management class attendance (19, 20). An estimated 55% of patients with diabetes have marginal or inadequate levels of health literacy (19) and approximately 80% have only a high school education (21). More than 300,000 people in the 13 metro-Atlanta counties served by Diabetes Association of Atlanta (DAA) have been diagnosed with diabetes (22). Diabetes education materials created using the principles of plain language and universal precautions can have significant public health implications in metro-Atlanta.

Diabetes Self-Management Education

Although the American Diabetes Association (ADA) recommends a team of healthcare professionals — including a primary care provider, registered dietitian, and endocrinologist — it recognizes that the individual patient is the primary person responsible for daily diabetes management. Patients themselves are responsible for as

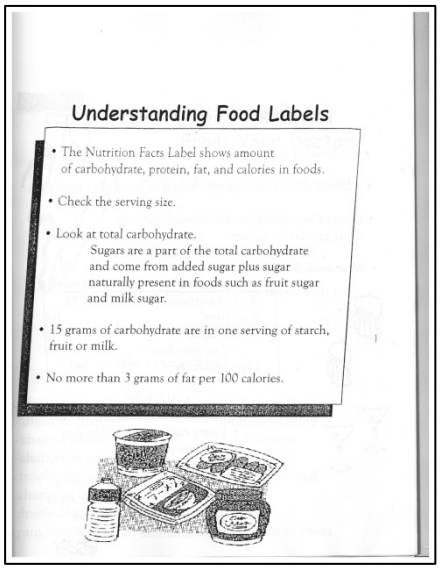
much as 95% of their own diabetes care (23). Diabetes self-management education focuses on equipping people with diabetes with the knowledge and skills that would help patients manage their condition so that they can achieve the best possible health outcomes. This includes training in healthy eating, staying active, medications, blood glucose monitoring, preventing and treating acute and chronic complications, goal setting, and healthy coping so that the patient can effectively self-manage their condition (24).

DSME is a standards-based method and has been shown to improve glycemic (blood sugar) control, an important predictor of diabetes-related complications (2). Additionally, the lifestyle changes taught and encouraged in DSME can prevent or delay the onset of diabetes for patients with pre-diabetes (25).

Organization Description

Serving thirteen metro-Atlanta counties, the Diabetes Association of Atlanta (DAA) works to improve the quality of life for people with diabetes through screening, education, and medical assistance in a caring, responsive way. Since it is not associated with a national organization, 100% of its resources are focused on supporting efforts in and around Atlanta.

DAA holds monthly diabetes education workshops across the metro-Atlanta region. These six-hour workshops are geared for individuals recently diagnosed with diabetes or pre-diabetes and for individuals who need a review course on self-management. The workshop is required for participants in the Medical Assistance Program (MAP), which provides diabetes supplies for up to six months to low-income



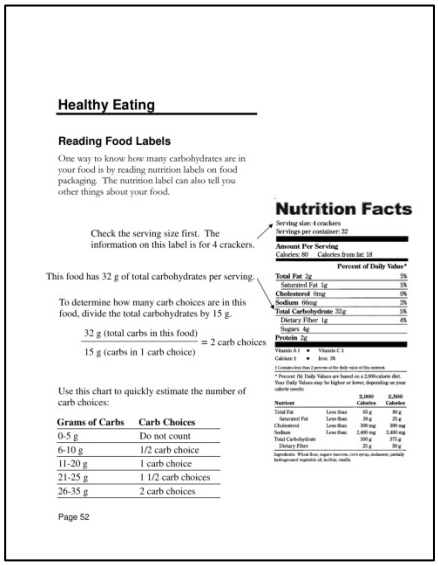


Figure 1 Left: Sample page from workbook version 1.9. Right: Updated page from version 3.0

people with diabetes who do not have other medical insurance coverage. Approximately forty-six percent of participants are part of MAP; the rest are referred by their doctors or insurance programs.

The current workbook (version 1.9) was designed in the late 1990s and covered topics such as blood glucose monitoring, managing blood glucose levels, and preventing complications. However, the workbook relied on the context of the class and was difficult to understand otherwise. For example, many pages simply showed lists with basic titles, without explanation of the contents or their relationship to the overall goal of diabetes self-management.

Furthermore, the format of the original electronic file was severely outdated and could not be opened with modern software. New participants received workbooks photocopied from a hardcopy version — itself possible multiple photocopy generations away from the original printed from the electronic file. The original workbook featured color graphics but was copied (and re-copied) in black and white, further reducing

quality. After more than a decade, this standard of production rendered text and pictures fuzzy, left pages out of order, and generally made the workbook difficult to comprehend.

Methods

Formative Research

I identified the two target audiences for the workbook: the educators and the class participants. Before making any changes to the workbook, I developed tools to identify the ways in which these two groups use and perceive the current workbook and the ways in which the new workbook can improve the educational experience for both groups. I created a short, open-ended survey to assess former participants' perceptions and use of the workbook. Topics covered in the survey included workbook use after the class, readability, and relevance of information covered in both the class and the workbook. I was not required to submit this project to Emory IRB because it was not considered human subjects research.

I called clients who had attended the DSME class in the previous three months and verbally administered the survey to five people. One additional participant filled out the survey using Google Docs, per his request. From these conversations, I determined that the information covered in the class, including information in the workbook, was presented in a way that most participants could understand. None of the participants interviewed used the workbook as a reference tool after the class ended, suggesting that the workbook was not actually helpful to participants.

I verbally administered a short, open-ended survey to the three educators who regularly teach DAA's self-management class. The topics covered included their

perceptions of participant understanding, the ways in which educators use the workbook when teaching, and their general suggestions for improving the workbook. The educators emphasized updating images and presenting the information more clearly.

I attended two class sessions to understand how the class is taught and to learn alongside the participants. I took notes on which topics seemed most confusing to participants, how topics were explained in class (and how the new workbook could support that), and what types of questions participants asked. Information gathered during class observations was used in drafting the workbook.

Writing

Before writing the new workbook, I researched best practices for creating health education materials, with an emphasis on writing for lower levels of health literacy, in accordance with plain language and universal precautions approaches. From the large body of research on designing materials for adult learning, I found these commonly accepted principles:

- using 12-16 point font (14, 26)
- using serif fonts in text and sans-serif fonts for headings (14, 26)
- using upper and lower case letters (never all-caps) (26)
- using left justification (14, 26)
- using 10-35% white space (26)
- using columns that are 40-50 characters long (26)
- putting pictures of body parts within the context of the body (26)
- using text boxes to draw attention to important information (26)

I applied these principals when designing and writing the new workbook. Many publications suggest that materials should be written at a 6th grade reading level or below. There are several popular reading formulae to determine reading level for written materials, all of which give slightly different results based in their specific method (27, 28). Reading formulae tend to favor prose text while much of the DSME workbook is bulleted lists (29). Additionally, reading formulae are only rough estimates of the readability of written materials and cannot guarantee the material is written well or is understandable and meaningful. Reading grade level is just one aspect of making patient education materials meaningful for the target audience (28). Therefore, I did not analyze the workbook text using a reading formula.

Since DAA's self-management education course is accredited by the American Diabetes Association (ADA), topics were chosen for inclusion in order to meet ADA accreditation guidelines. The order of the topics was determined in consultation with the educators to match their preferred teaching methods. "Interactive" sections of the book were designed to help class participants "develop personal strategies to promote health and behavior change", in line with DSME standards. These sections encourage the participant to reflect on his or her own experiences and formulate plans for managing their diabetes.

During my formative research, I determined that none of the participants used the workbook after the class. We decided to make the new workbook more comprehensive so that participants could continue to use it as a resource. To this end, I included more thorough explanations of concepts and the rationale behind self-care behaviors than was included in workbook version 1.9.

Also as a result of the formative research, I determined that the healthy eating section is the most important to participants, but many have trouble understanding the sometimes complicated ways to plan a healthy meal. To address this, the healthy eating section begins with a one-page summary of the very basics of meal planning, and explains other methods in increasing complexity: first the plate method, followed by reading nutrition labels, followed by counting carb choices.

For each section, I consulted multiple reputable sources for information and best practices for self-management, including the ADA and the American Association of Diabetes Educators (AADE). I also found ideas for explaining various concepts in diabetes self-management through searches for education materials produced specifically for low-literacy audiences.

All information in the workbook was confirmed by three Certified Diabetes Educators (CDEs). CDEs must pass an exam and complete 1,000 hours of DSME experience to earn certification (30). Additionally, they must have at least 1,000 hours of professional practice experience and 75 hours of continuing medical education (CME) every 5 years to maintain certification (31).

Testing

Methods

DAA deemed version 1.9 too outdated for continued use and put version 2.0 into practice in September 2011 without pre-testing. In December 2011, I started the formal process of evaluating perception using the principles of pre-testing. Results from this evaluation were continually analyzed and changes were made based on the feedback.

Three Certified Diabetes Educators reviewed all drafts to ensure accuracy and appropriateness for their teaching methods. The entire workbook was proofread by three people with different levels of health literacy.

I modified the original formative survey and administered it to four participants who took the class between September and December 2011. The topics covered were similar to the original survey and focused on use after class. Use of the workbook after class increased with version 2.0.

Because of time and budgetary constraints, it was not feasible to evaluate the entire workbook. DAA identified key sections of the workbook that should take priority in the evaluation process: “What Is Diabetes”, “Sick Day Care”, “Healthy Eating”, and “Goal Setting”. Additionally, I identified key graphics (specifically the “Balance Icon”, see figure 2) that should be tested. In all, eight participants reviewed the “Sick Day Care” section, eight reviewed the “What is Diabetes” section, six reviewed the “Goal Setting” section, and eight reviewed the “Healthy Eating” section. Four participants reviewed the Balance Icon.

Class participants are supposed to have a follow-up visit or phone call with the DAA education coordinator after three, six, and twelve months. As part of those in-person visits, clients were asked to participate in the evaluation process. Additionally, class attendees were asked to stay after class for an additional 10-20 minutes to participate in the evaluation process.

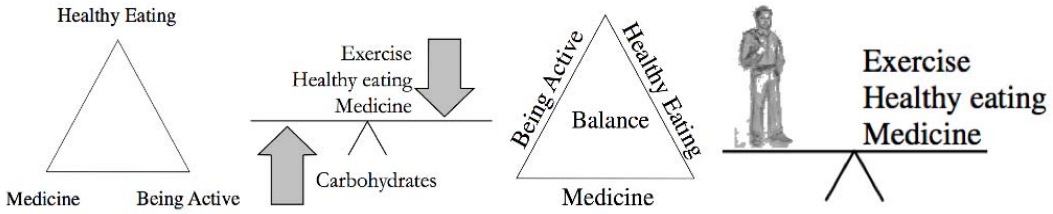


Figure 2 Versions of the "Balance Icon", designed to show that managing diabetes requires balancing three main components: healthy eating, being active, and taking medicine. The original figure is on the far left. Other figures were developed and tested in response to feedback. Ultimately, no icon tested well enough to be included in the workbook.

These participants were shown versions of the Balance Icon and asked to describe what they saw. They were also given three versions of a goal-setting worksheet and asked to set goals in order to determine the best format for encouraging useful, specific, and meaningful goals. Clients who participated in the evaluation process were given a $10 Kroger gift card in appreciation of their time. Five clients participated in this process.

Clients who had a follow-up phone conversation were asked to participate in the evaluation process by mail. Three agreed and were mailed a 3-5 page section of the workbook. They were instructed to read over the material, highlight any words or sentences that were unclear, and write questions in the margins. I then called those participants at pre-arranged times and asked them questions about the section's content to determine their understanding of the material. We also discussed their questions and comments. Two clients participated in this process and one was lost to follow-up.

Three students from the Rollins School of Public Health volunteered to help me with the evaluation process. We approached people in various locations (e.g., a clinic, Emory University academic buildings, a mall) and asked them to participate in the pre-testing process. Participants were not asked about their diabetes status. Participants read

a 3-4 page section of the workbook and answered questions about the section to determine how much they understood and retained. Twenty-eight people participated in this process.

Results

The final workbook is 92 pages and includes sections on sick day care, goal setting, medication, healthy eating, staying active, and preventing complications. Using feedback from the evaluation process, I modified explanations, word choices, and content.

The educators requested that several additional pieces of information be added to the workbook, including a list of common diabetes medications and how they work in the body and additional information on carbohydrate-free foods and fats. They also requested that certain sections be rearranged to better fit their teaching styles.

We originally decided to omit a section on outside resources because of the difficulties in keeping that information current. However, class participants indicated that such information would be useful, so the final version has a list of local resources for additional education, help with supplies, and free and low-cost service providers.

The Balance Icon was in the top corner of every page and is designed to represent the three main components of diabetes self-management: healthy eating, staying active, and appropriate medication adherence. It was determined that class participants do not readily understand the diagram's meaning, so I designed three other potential icons and evaluated those in an iterative process. Ultimately, participants did not intuit any of the

icons and felt it added unnecessary clutter to some pages, so it is not included in the final workbook.

Strengths and Limitations

DAA's DSME workbook has several strengths. It was written using principles of universal precautions and health literacy and was pre-tested in the field to ensure maximum efficacy. Although it was designed specifically to fit with the teaching styles of the three current educators, all three have disparate teaching styles. Therefore, this workbook is specific enough to match the current educators, but general enough to be used by anyone.

Class participants have disparate socioeconomic and educational backgrounds. This workbook is designed to be meaningful and relevant to all participants. Although it is written for people with low levels of health literacy, studies suggest that people who read well prefer educational materials written for people who do not read well (16).

To my knowledge, this is the only comprehensive diabetes education material designed specifically for the metro-Atlanta region. It includes foods and language that is common and acceptable to this area and the resource section in the workbook includes local and national organizations that serve this area.

When working with multiple stakeholders, it is necessary to please all parties. Sometimes, this may result in diluting the information when stakeholders hold different notions of what the final product must or should contain. I felt certain content in the final workbook was unnecessary, but it was included to assuage the educators.

Publications should include only information that is needed to produce the desired behavior change (14). I do not believe information on how and where specific diabetes medications work is necessary for a person to effectively self-manage their diabetes. I think this information is superfluous and may cause confusion. However, the educators believe it is important, and so the final workbook includes this information.

Also included in the workbook are two tables for target blood glucose levels: one with American Diabetes Association (ADA) target levels and one with American Association of Clinical Endocrinologists (AACE) target levels. ADA and AACE target levels are slightly different, so the educators thought it was important to include both. I think the two targets are confusing and unnecessary. As a compromise, both targets were included with a short explanation of the difference. We also encourage participants to check with their doctor and circle their recommended targets.

Another example of too much information is the inclusion of a Body Mass Index (BMI) chart. Many readers with low literacy levels have trouble reading and understanding complex tables (9). Additionally, the concept of BMI is not meaningful for most people, and the workshop educators do not explain the relationship between BMI and glycemic control during class. This same concept — that losing weight can help improve glycemic control — is better explained without the use of a complicated chart.

I did not conduct a pre-project health literacy assessment. This assessment would have allowed me to better tailor the workbook to the health literacy skills of DAA's main population. Instead, a universal precautions for health literacy approach was used.

Three Certified Diabetes Educators reviewed all drafts to ensure accuracy and appropriateness for their teaching methods. The entire workbook was proofread by three people with different levels of health literacy.

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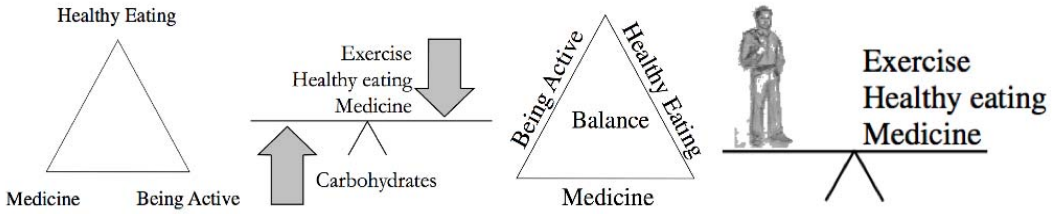

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confidence in my abilities, including my capacity to apply my knowledge to real-world situations and my skills to new situations.

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Diabetes Self-Management Program

Version 2.9

Modified on April 10, 2012

This diabetes education program has been awarded recognition by the American Diabetes Association in accordance with the National Standards for Diabetes Patient Education Programs.

The Diabetes Association of Atlanta is a United Way Service Agency.

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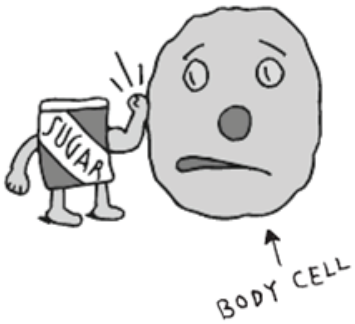
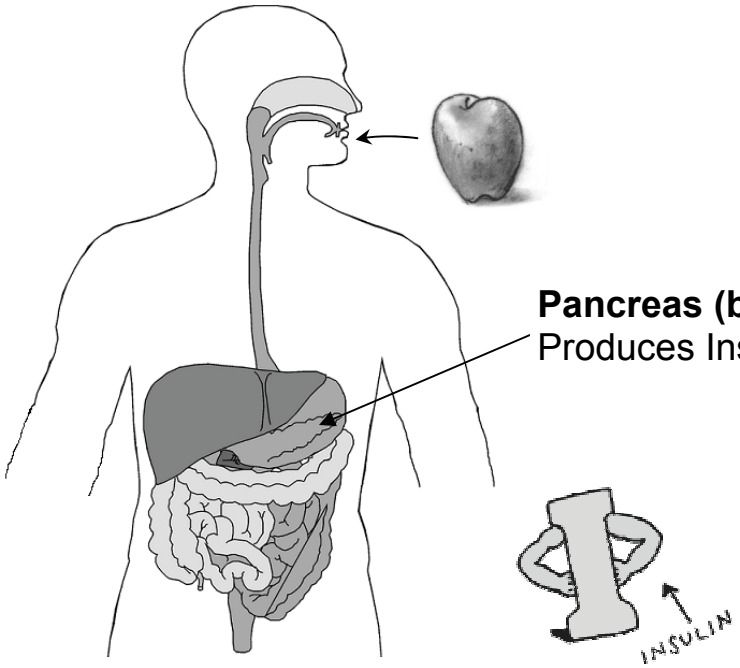
Table of Contents

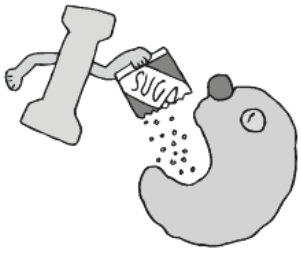
What is Diabetes?

Your body needs sugar for energy. When you eat, most of the food is changed into glucose, a form of sugar. The sugar travels in your blood to all the cells in your body. The sugar goes into your bloodstream but it does not need to stay there. The sugar needs to get inside the cells so it can burn up as energy.





In order for the sugar to get inside the cells, insulin needs to be present and working. Insulin is a hormone made by the pancreas.



What is Diabetes?

Symptoms of High Blood Sugar (Hyperglycemia)

High blood sugar is caused when your pancreas does not make any or enough insulin, or when the insulin does not work as it should. Glucose (sugar) stays in your blood instead of getting into cells to be used for energy.


Extreme thirst


Hunger


Feeling drowsy


Feeling sick to your stomach


Going to the bathroom a lot


Blurred vision


Headache


Dry skin

What signs of high blood sugar have you had? Check all that apply.

- ☐ Extreme thirst
- ☐ Hunger
- ☐ Feeling drowsy
- ☐ Feeling sick to your stomach
- ☐ Going to the bathroom a lot
- ☐ Blurred vision
- ☐ Headache
- ☐ Dry skin

What is Diabetes?

Do I Really Have Diabetes?

There are 3 tests that doctors use to diagnose diabetes. Your doctor may repeat the test on different days to confirm the diagnosis.

Pre-diabetes is when blood glucose (sugar) levels are higher than normal, but not high enough to be diagnosed as diabetes. People with pre-diabetes can help prevent diabetes by eating healthy and being active.

Diabetes is when blood glucose (sugar) levels are very high (there is too much sugar in the blood). People with diabetes can manage their blood sugar by eating healthy and being active. Some people may also need to take medicine.

Glucose is a kind of sugar. Most people say sugar, but your doctor may say glucose. They are almost the same thing.

Type of Test	Result for Pre-diabetes	Result for Diabetes
Fasting (no food for 8 hours) Plasma Glucose	100-125 mg/dl	126 mg/dl or higher
Casual (anytime) Plasma Glucose	140-199 mg/dl	200 mg/dl or higher and symptoms of diabetes
Oral Glucose Tolerance	140-199 mg/dl	200 mg/dl or higher
A1C	5.7-6.5%	6.5% or higher

What is Diabetes?

The Two Main Types of Diabetes

Type 1:

- The body makes little or no insulin.
- Symptoms usually appear suddenly.
- Type 1 usually appears before age 30.

Diabetes: when you have too much sugar in your blood

Type 2:

- The body makes insulin, but it does not work as it should or the body does not make enough insulin.
- Most people with diabetes have type 2.
- Type 2 usually appears after age 30.
- Type 2 usually develops slowly.
- People may have mild or no signs of diabetes.
- Most people with type 2 are overweight, but even people who are not overweight can have diabetes.
- Many people with type 2 have a family history of diabetes, but even people without a family history can have diabetes.

Which type do you think you have? (Check one)

☐ Type 1

☐ Type 2

☐ Do not know

What is Diabetes?

Who Gets Type 2 Diabetes?

The exact cause of diabetes is not known. Some people seem to have a greater chance of getting diabetes.

Major Risk Factors: (check all that apply to you)

- ☐ Over age 45
- ☐ Certain ethnic groups
  - African Americans
  - Hispanic Americans
  - Asian Americans
  - Native Americans
  - Pacific Islanders
- ☐ Family history
- ☐ Overweight
- ☐ History of gestational diabetes or delivery of a baby over 9 lbs.
- ☐ High blood pressure: 140/90 or greater
- ☐ HDL cholesterol of 35 mg/dl or less
- ☐ Physically inactive

Living with Diabetes

Managing Diabetes

Diabetes is managed by balancing **healthy eating**, **being active**, and **medicine**. These things all affect blood sugar levels. All 3 are important to living a healthy life with diabetes.

Healthy eating means eating the right amounts of carbohydrates, meats (protein) and vegetables. Carbohydrates make blood sugar go up. Our bodies need some carbohydrates for energy, but too many carbohydrates can cause blood sugar that is too high.

Being active helps lower blood sugar. People should be physically active at least 30 minutes on most days of the week.

Medicine helps the body use glucose (sugar) for energy. Some cases of diabetes can be controlled without medication, but many people need to take it to manage their diabetes.

Healthy eating, being active, and taking your medicine will help you keep your blood sugar in your target range. See page 15 for more information on your target range.

Living with Diabetes

Feelings About Diabetes

Diabetes affects the entire family. Having diabetes can mean a change in the types of food you buy and eat. It can also mean more money is spent on medications and doctor's visits. It can even mean changing when and how often you and your family eat.

Having diabetes can be life-changing and can feel overwhelming. There are so many things to learn about diabetes and coping with it. Common emotions may come and go, and can happen in any order.

If you have signs of depression, talk with your doctor right away. Depression can be dangerous, but it can be treated.

How did you feel when you found out you have diabetes? (Check all that apply)

☐ Denial: Believing you do not really have diabetes or do not need to take care of it

☐ Anger: Being mad at having diabetes; may act angry towards others

☐ Depression: Feeling great sadness and hopelessness

☐ Bargaining: Making deals with yourself that you will skip exercise or eat poorly just one last time.

☐ Acceptance: Adjusting and adapting to diabetes

How do you feel now?

_____

Living with Diabetes

Coping

For many people, trying to manage diabetes can be stressful. The body's reaction to stress can cause higher blood pressure and higher blood sugar. If you know the signs of stress, you can do somenthing to relieve it.

Common Signs of Stress:

- Headaches
- Tight muscles
- Frequent feelings of anger
- Loss of interest in sex
- Not feeling sure of yourself
- Change in eating or sleeping patterns

Stress: An event (good or bad) that causes strain on a person

Healthy Ways to Cope:

- Prioritize
- Set realistic goals
- Practice your religion
- Practice hobbies
- Take breaks
- Cry
- Take a walk
- Laugh
- Talk about your feelings with family or friends, or join a support group.

Different people may show different signs of stress. Knowing how you experience stress may help you cope.

What are the ways your body shows its stress?_____

_____

What are some hobbies or activities that help you deal with stress? _____

_____

Living with Diabetes

Depression

People with diabetes are more likely to be diagnosed with depression. Depression can be dangerous, but it can be treated.

Signs of depression:

- Constant sad, anxious, or "empty" feelings
- Feeling hopeless
- Feeling worthless
- Feeling irritable, grouchy, or restless
- Feeling not interested in activities you used to enjoy
- Having trouble concentrating, paying attention, remembering details, or making decisions
- Sleeping too much or having trouble sleeping enough
- Eating too much or not being hungry
- Thinking about suicide

Some people with depression have many of these signs, while others have only a few. If you have signs of depression, talk with your doctor right away.

Living with Diabetes

Notes for Family and Friends

People with diabetes do a better job in controlling their blood sugar with the support of their family. Here are some important things to remember when a family member or friend is diagnosed with diabetes:

- Diabetes affects the whole family, not just the person who has diabetes.
- People with diabetes have a lot of different feelings at different times. These feelings are normal and can include anything from anger to hopelessness.
- The most important thing to do as a family is talk about the feelings you are having and how diabetes is affecting your lives. Talking is a good way to support one another.
- Family members can help by offering their support to the person with diabetes. Praise your family member with diabetes for the healthy changes they are making. Encourage them to keep trying. Let them know that you will be right there to provide support.
- People with diabetes are in charge of taking care of themselves. You can help by offering your support, but do not nag.

Living with Diabetes

Setting Goals

Setting goals helps people control their diabetes. The best goals are S.M.A.R.T.

Specific: "My goal is to exercise more" is not clear or specific. "I will ride my bike to work 3 times per week" or "I will take the stairs every morning" is much better..

Measurable: Your goal should be measurable so you can keep track of your progress. You cannot measure "more often" but you can measure "3 times per week."

Action Oriented: A goal is something you can do, not something you want to happen. "Lose 20 pounds" is something you want to happen. "Walk for 30 minutes" is something you can do.

Realistic: Most people cannot run for 2 hours every day. That goal is not realistic. "I will run for 15 minutes" might be more realistic.

Timely: Goals should include a time frame. "I will bike to work 3 times this week." Long-term commitments are scary, so break down your goal into smaller bits. You can always extend your time frame, but you should start small.

Setting S.M.A.R.T. goals

Look for this box throughout the workbook. These boxes will help you set S.M.A.R.T. goals. At the end of this class, you will choose 1 or 2 goals that you think are most important. Give a copy of these goals to the instructor and keep a copy for yourself.

Monitoring Blood Sugar

Managing diabetes is about managing your blood sugar. Keeping blood sugar within your target range will help reduce the risk of long-term complications. Your blood sugar should be within your target range as often as possible. The only way to know if your blood sugar is within range is by testing often (monitoring). You should test at least once per day, or as often as you can. If you cannot afford test strips, test at different times of the day throughout the week to get an overall picture.

What can you learn from monitoring?

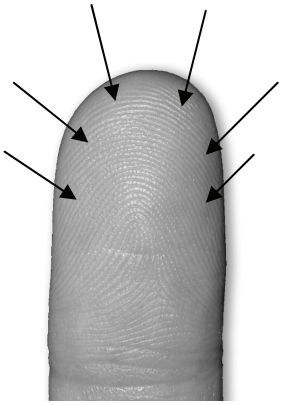
Monitoring helps you learn how your body reacts to certain foods, medicines, sickness, and stress. This result can guide you into making better decisions about your diabetes care.

If you check...	You may learn...
Before breakfast	Whether your medication from the day before was the right amount to keep your morning blood sugar in your target range.
Before lunch	Whether your medication was the right amount for your morning food and physical activity.
Before dinner	Whether the medication you took earlier in the day was the right amount for your food and physical activity by dinner time.
2 hours after meals	Whether the food you ate was the right amount for the medication you took.
Before bedtime	Whether your blood sugar is in your target range to be safe through the night.
3:00 a.m.	Whether your treatment plan is working to keep your blood sugar level in target range through the night.

Monitoring Blood Sugar

Tips to help you monitor your blood sugar:

- Wash hands with soap and water.
- Warm hands by rubbing together.
- Check expiration date of strips.
- Use a lancing device.
- Stick the side of your fingertip, where there are fewer nerve endings (it will not be as painful).
- Use a different finger each time.
- Write down the results and share with your doctor or healthcare provider.



Stick the side of your fingertip, so it will not hurt as much.

American Diabetes Association Target Ranges

	Target
A1C	Less than 7%
Before meals	70-130 mg/dl
1-2 hours after meals	Below 180 mg/dl
Bedtime	110-150 mg/dl

American Association of Clinical Endocrinologists Target Ranges

	Target
A1C	Less than 6.5%
Before meals	Below 110 mg/dl
2 hours after meals	Below 140 mg/dl

Both ADA and AACE recommendations are good guidelines for target blood sugar levels. Most doctors use ADA recommendations, but some use AACE. Which recommendation did your doctor tell you to use?

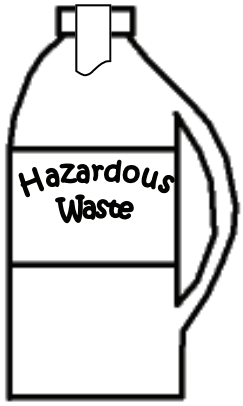
- ☐ American Diabetes Association (ADA)
- ☐ American Association of Clinical Endocrinologists (AACE)
- ☐ I don't know

Monitoring Blood Sugar

Lancets

Lancets are the small needles used for monitoring. They can stick people if you do not treat them with care. After you use a lancet:

- Put in a puncture-proof container. An old bleach bottle (or any other bottle made of thick plastic) with a lid works well.
- Tape the top when container is full.
- Clearly mark as "Hazardous Waste."
- Place in trash or take to your doctor's office. **Do not recycle.**



Put lancets in a bottle made of thick plastic, like an old bleach bottle. When the bottle is full, put a piece of tape over the lid. Write "hazardous waste" on the bottle and throw it away.

Tips for Remembering to Monitor

- Plan specific times to test.
- Keep monitor and supplies together.
- Use the alarm on your phone or test when your favorite show starts.

Step 1: Fill in the dates. Track results for 3 days in a row.

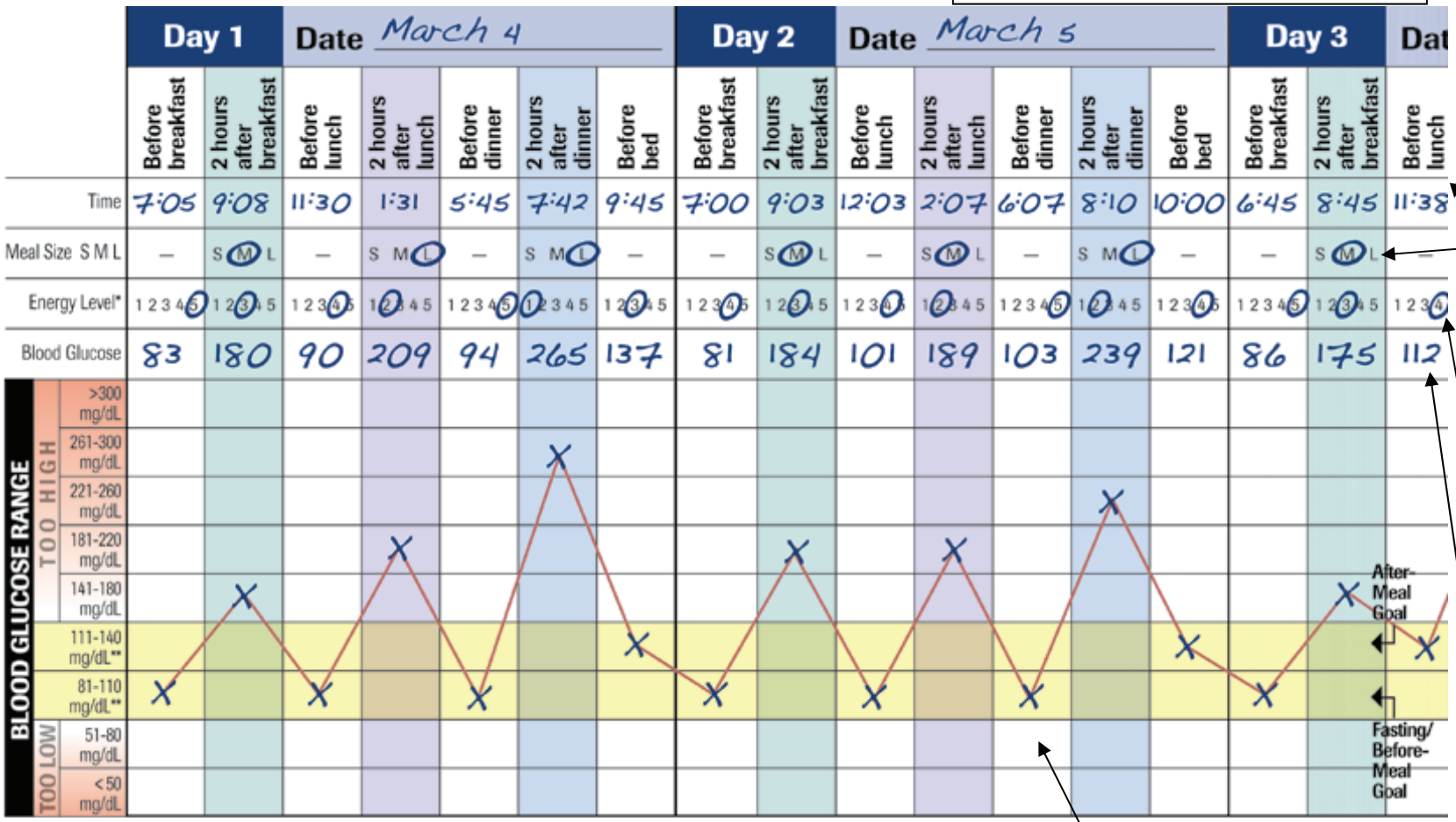
Step 2: Fill in the time of the test in the first row.

Step 3: Based on your normal eating habits, how big was this meal?
S: Small
M: Medium
L: Large

Step 4: Rate your energy level on a scale of 1 (very low) to 5 (very high).

Step 5: Enter your blood sugar value.

Step 6: Graph your blood sugar level by drawing an X in the row of the chart that has your blood sugar number. For example, if your blood sugar level is 103 mg/dl, draw an X in the row labeled "81-110 mg/dl" because 103 is between 81 and 110.
Draw lines to connect the Xs.



What does this chart tell you? This person's blood sugar is too high after meals. He should adjust the amount of carbohydrates he eats at meals or talk with his doctor about changing his diabetes medication.
This person's energy level is very high when his blood sugar is in the normal range. His energy level is very low when his blood sugar is too high.
This person's blood sugar is highest when he eats large meals. He should eat smaller meals. If he gets hungry between meals, he can eat a small snack. This will help keep his sugar level closer to his target range.

ACCU-CHEK® 360° View Blood Glucose Analysis System

PATIENT NAME	INSULIN NAME	DOSE (UNITS)	SHOTS/DAY	ORAL DIABETES MEDICATIONS	DOSE	TIMES/DAY	PHYSICIAN NAME
PATIENT PHONE							PHYSICIAN PHONE

	Day 1 Date							Day 2 Date							Day 3 Date						
	Before breakfast	2 hours after breakfast	Before lunch	2 hours after lunch	Before dinner	2 hours after dinner	Before bed	Before breakfast	2 hours after breakfast	Before lunch	2 hours after lunch	Before dinner	2 hours after dinner	Before bed	Before breakfast	2 hours after breakfast	Before lunch	2 hours after lunch	Before dinner	2 hours after dinner	Before bed
Time																					
Meal Size S M L	—	S M L	—	S M L	—	S M L	—	—	S M L	—	S M L	—	S M L	—	—	S M L	—	S M L	—	S M L	—
Energy Level*	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5	1 2 3 4 5
Blood Glucose																					
BLOOD GLUCOSE RANGE — TOO HIGH >300 mg/dL																					
261–300 mg/dL																					
221–260 mg/dL																					
181–220 mg/dL																					
141–180 mg/dL																					
111–140 mg/dL**																					
81–110 mg/dL**																					
TOO LOW 51–80 mg/dL																					
< 50 mg/dL																					

After-Meal Goal

Fasting/Before-Meal Goal

*ENERGY LEVEL					
What is your energy level?	1 Very Low	2 Somewhat Low	3 Moderate	4 Somewhat High	5 Very High

WARNING: Do not adjust your prescribed oral medication or insulin therapy without first consulting your physician.

What did you learn from doing this analysis of your blood glucose results?

_____

_____

Bring this form and your ACCU-CHEK® blood glucose monitoring system to your next physician appointment.

**American Association of Clinical Endocrinologists Task Force for Developing a Diabetes Comprehensive Care Plan. American Association of Clinical Endocrinologists medical guidelines for clinical practice for developing a diabetes mellitus comprehensive care plan. *Endocr Pract.* 2011;17(suppl 2):51-552.

Monitoring Blood Sugar

What If Blood Sugar Is Not Within My Target?

If too high: drink water or exercise (note: only exercise if blood sugar is below 250 mg/dl or ketones are not present.)

If too low: eat or drink fast-acting sugar. See page 37 for more information on low blood sugar.

If your blood sugar is too high or too low for 2 days in a row, call your doctor.

Hemoglobin A1C Test

You should have an A1C test every 3 months. This test gives the average sugar levels for the past 3 months.

An A1C level of less than 7% means that you are doing a good job of managing your blood sugar. Your doctor may give you a target A1C that is lower than 7%.

A1C tests are usually ordered by a doctor, but can also be done at home. Use the chart on page 80 to track your A1C.

Hemoglobin A1C: a protein in the blood. When blood sugar is high, it sticks to the hemoglobin. The higher the blood sugar, the more it will stick. Hemoglobin A1C is sometimes called HbA1C or just A1C.

An A1C level of...	Means your average sugar was...
6%	135 mg/dl
7%	170 mg/dl
8%	205 mg/dl
9%	240 mg/dl
10%	275 mg/dl
11%	310 mg/dl
12%	345 mg/dl

Urine Ketones

What are Ketones?

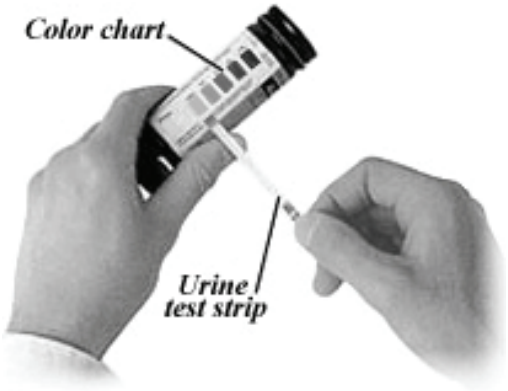
When your blood sugar level is too high for a very long time, your body is forced to burn fat instead of sugar for energy. This is because there is not enough insulin to change sugar into energy.

When this happens, your body makes acids called ketones that can be found in your urine. The presence of ketones can lead to a serious condition called ketoacidosis. This requires immediate medical attention. You are more likely to find ketones in your urine when you have Type 1 diabetes.

Testing

Urine tests are simple but you must make sure your ketone testing strips are not expired. Be sure to read the insert that comes with your testing strips. The changing color of a strip will tell you the level of ketones in your urine.

- Get a sample of your urine in a clean container and put test strip into the container OR pass the test strip through the urine stream.
- Gently shake off excess urine from the test strip.
- Wait for the test strip to change color. The insert that comes with your test strips will tell you how long to wait.
- Compare the test strip to the color chart on the test strip bottle. Find the color that matches to know how many ketones are in your urine.
- Record your results.
- Throw the test strip in the trash.



Compare the ketone test strip to the color chart on the test strip bottle. Find the color that matches to know how many ketones are in your urine.

Urine Ketones

When to Test for Ketones:

- If your blood sugar is higher than 250 mg/dl
- During sickness or stress
- If you have symptoms of ketoacidosis:
    - Nausea
    - Vomiting
    - Stomach Pain

Ketoacidosis: happens when there are too many ketones in your blood or urine. Ketoacidosis can lead to coma and even death if not treated quickly.

If Ketones are Present:

If ketones are present, it could mean your blood sugar is out of control. Remember: high levels of ketones can lead ketoacidosis, which can be life-threatening.

- If you have moderate or high levels of ketones, call your doctor immediately. If you cannot reach your doctor or clinic, go to the nearest emergency room.
- Do not exercise if blood sugar is above 250 mg/dl.

Monitoring Blood Sugar

Goals

Setting goals helps people control their diabetes.
Goals should be S.M.A.R.T.

Specific

Measurable

Action Oriented

Realistic

Timely

Use this form to help you set goals for testing your blood sugar.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

_____

Ways I will overcome or address these barriers are _____

_____

_____

My pre-meal target range is _____

My target range 2 hours after a meal is _____

Being Active

Getting Started

Exercise is an important part of managing diabetes. It has many benefits, including:

- Lowering blood sugar
- Lowering blood pressure
- Reducing stress
- Helping with weight control
- Improving circulation
- Increasing energy

You should exercise at least 30 minutes on most days of the week. You do not need to do it all at once. To start, try taking a 10 minute walk 3 times per day, then gradually work up to longer walks. Try these tricks for sneaking exercise into your daily routine:

- Take the stairs.
- Park your car farther away.
- Walk to your coworker's desk instead of calling or sending an e-mail.
- Walk or bike to a nearby store or restaurant instead of driving.
- Take your dog for a longer walk.
- Get off the bus 2 blocks before your stop.
- Lift small weights while you watch TV. You can use soup cans if you do not have weights.

Being Active

Planning for Exercise

People with diabetes are at greater risk of certain complications and should be careful when exercising. Following these tips will help keep you healthy:

- Check with your doctor before starting an exercise program. People with diabetes are at greater risk for heart problems and high blood pressure.
- Stop if you feel pain, you feel dizzy, or you have difficulty breathing.
- If your blood sugar is too low, eat something before you exercise.
- Never exercise barefoot. People with diabetes are at greater risk of foot problems.
- Talk with your doctor before jogging. People with diabetes are at greater risk of nerve damage in their feet.
- Avoid sudden jerking movements and hanging your head down below your waist. People with diabetes are at greater risk of eye damage.
- Take a small snack in case your blood sugar drops suddenly.
- Drink plenty of water.
- Wear comfortable, loose clothing.
- Wear cotton socks and proper shoes.
- If ketones are in your urine, do not exercise. Ask your doctor if you should check for ketones.

Being Active

Planning for Exercise

People with diabetes should always check their blood sugar before exercising.

Examples of light exercise: walking 1/2 mile, leisurely bicycling

Examples of moderate exercise: gardening, vacuuming for 1 hour, swimming, tennis

Examples of strenuous exercise: basketball, football, intense bicycling or swimming

Blood Sugar	Type of Planned Exercise	What you should eat before exercising
Less than 100 mg/dl	Light	1 serving of fruit, bread, or milk
	Moderate	1/2 of a sandwich with 1 serving of fruit or milk
	Strenuous	1 sandwich with milk and 1 serving of fruit
100-170 mg/dl	Light	No extra food needed before exercising
	Moderate	1 serving of fruit or bread
	Strenuous	1/2 of a sandwich with 1 serving of fruit or milk
171-250 mg/dl	Light	No extra food needed before exercising
	Moderate	No extra food needed before exercising
	Strenuous	No extra food needed before exercising
Above 250 mg/dl	Light	No extra food needed before exercising
	Moderate	Check ketones and wait until sugar is in target range to exercise
	Strenuous	Check ketones and wait until sugar is in target range to exercise

Being Active

Goals

Setting goals helps people control their diabetes.
Goals should be S.M.A.R.T.

Specific

Measurable

Action Oriented

Realistic

Timely

Use this form to help you set goals for being active.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

_____

Ways I will overcome or address these barriers are _____

_____

_____

Being Active

Case Study

You have type 2 diabetes and are overweight. You are ready to start a regular exercise program.

What should you do before you start?

_____
_____
_____
_____
_____
_____
_____
_____

What things should you do to make sure you stay safe?

_____
_____
_____
_____
_____
_____
_____
_____

Medications

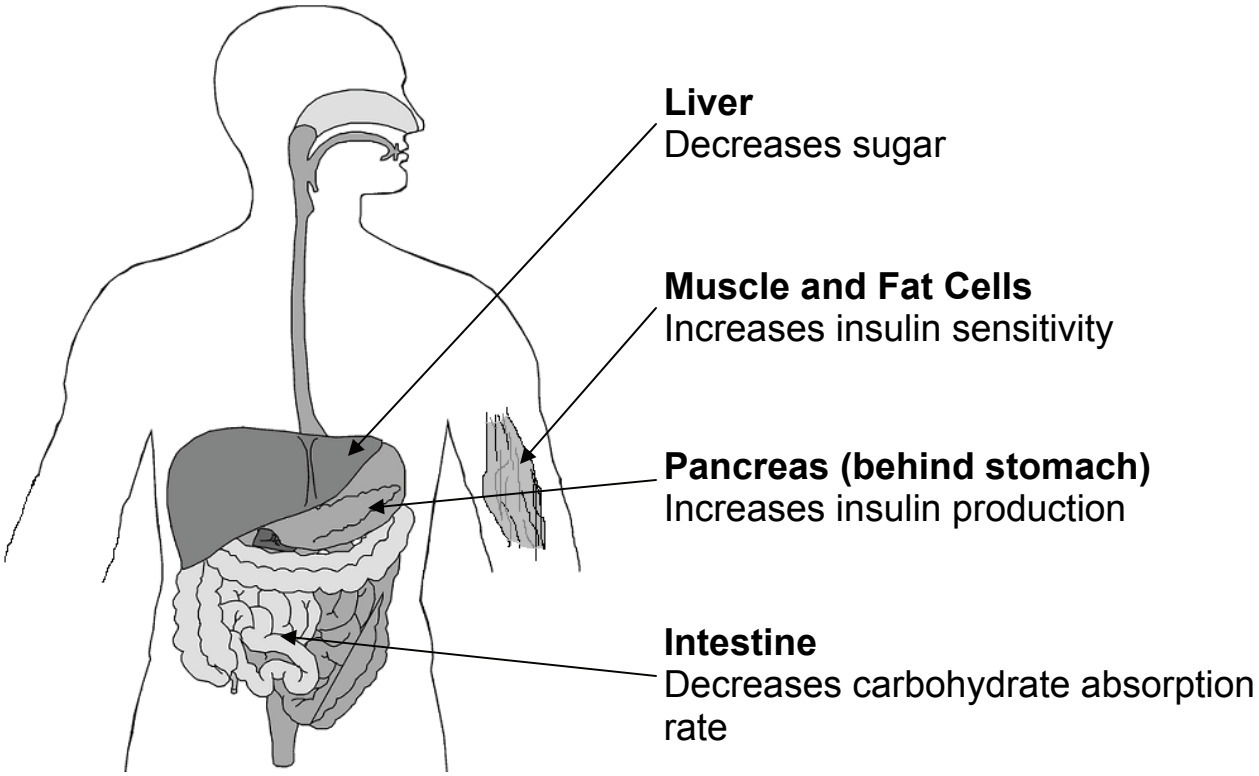
Overview

Our bodies make glucose (sugar) from the foods we eat. For people with diabetes, the body needs extra help using the sugar for energy. Some cases of diabetes can be controlled without medication, but many people need to take medicine to help with this process. Some people take diabetes pills, while others will need to take insulin.

- Different types of diabetes pills work on different parts of the body.
- Insulin shots replace the insulin that your body should make naturally, but does not.

Insulin: a hormone made by the pancreas. It acts as a key to allow sugar to get inside the cells so it can be used for energy. People with type 1 diabetes must take insulin to survive. People with type 2 diabetes may need to take insulin for better diabetes control.

Where Medications Work



Medications

Oral (Mouth) Pills

Circle the medicines you take.

How it Works	Brand Name (Generic Name)	Possible Side Effects
Reduces amount of sugar made by liver	Fortamet (metformin) Glucophage (metformin) Glucophage XR (metformin) Glumetza (metformin) Riomet (metformin)	Stomach or intestinal problems, may cause lactic acidosis
Increases sensitivity to insulin	Actos (pioglitazone) Avandia (rosiglitazone)	Weight gain, liver problems, may cause heart attack
Increases insulin made in pancreas, decreases sugar made in liver	Januvia (sitagliptin)	Headache, upper respiratory infections, sore throat, runny or stuffy nose
Increases the amount of insulin in pancreas	Amaryl (glimepiride) Glucotrol (glipizide) Glueotrol XL (glipizide) Diabeta (glyburide) Glynase (glyburide) Micronase (glyburide)	Low blood sugar, weight gain
Increases the amount of insulin released from pancreas	Starlix (nateglinide) Prandin (repaglinide)	Low blood sugar
Slows digestion of carbohydrates	Precose (acarbose) Glyset (miglitol)	Stomach or intestinal problems

Medications

Injectable

Circle the medicines you take.

How it Works	Brand Name (Generic Name)	Possible Side Effects
Helps increase insulin production	Byetta (exenatide)	Nausea, vomiting, low blood sugar, decreased appetite
Slows food moving through stomach	Symlin (pramlintide)	Nausea, vomiting, low blood sugar, decreased appetite
Helps pancreas release the right amount of insulin	Victoza (liraglutide)	Nausea, vomiting, low blood sugar, decreased appetite

Medications

Insulin

Insulin must be stored properly or it will not be effective.

- Opened bottles stored at room temperature are good for 30 days.
- Unopened bottles should be kept in the refrigerator (do not freeze).
- Predrawn syringes (syringes that already contain a dose of insulin) are good for 2 weeks in the refrigerator.

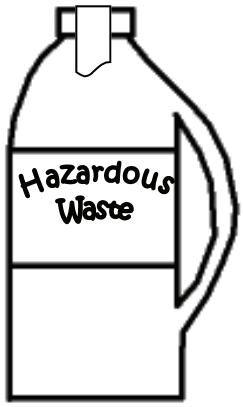
Always check the expiration dates and manufacturer recommendations.

If insulin is discolored or lumpy, do not use.

Needle Disposal

Needles used to inject insulin can be dangerous and must be disposed of properly.

- Do not recap needles.
- Do not bend or cut needles.
- Place used needles in a puncture proof container. An old bleach bottle (or any other bottle made of heavy plastic) with a lid works well.
- Tape the top when container is full.
- Clearly mark "Hazardous Waste."
- Place in trash or take to your doctor's office. **Do not recycle.**

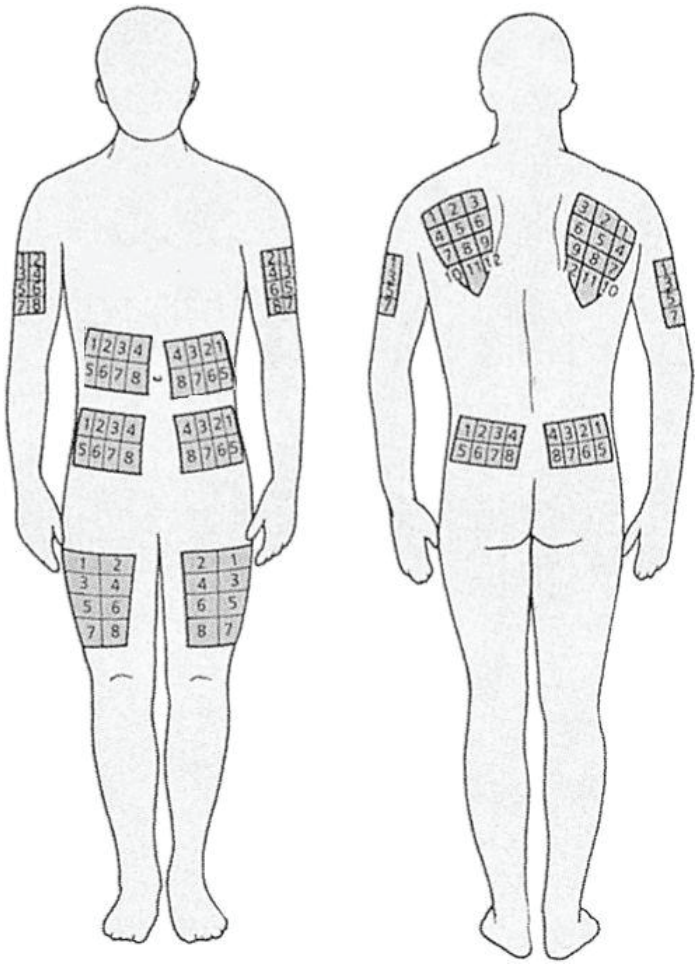


Put needles in a bottle made of thick plastic, like an old bleach bottle. When the bottle is full, put a piece of tape over the lid. Write "hazardous waste" on the bottle and throw it away.

Medications

Insulin

Insulin is absorbed at different speeds when it is injected into different body parts. You should inject the insulin for a specific time of day into the same body part every day. Make sure to move around within that body part, as shown by the numbered grids below.



Medications

Insulin Types

Type	How it works	Brand name	Generic name	Side effects
Rapid acting insulin	Starts working within 5-15 minutes	Apidra Humalog Novolog	Insulin glulisine Insulin lispro Insulin aspart	Low blood sugar, weight gain
Short acting insulin	Starts working within ½ hour to 1 hour	N/A	Regular	Low blood sugar, weight gain
Intermediate acting insulin	Lasts for 10-20 hours	N/A	NPH	Low blood sugar, weight gain
Long acting insulin	Provides coverage over 24 hours	Lantus Levemir	Insulin glargine Insulin detemir	Low blood sugar
Pre-mixed insulin		N/A	70/30 50/50 75/25 70/30	Low blood sugar, weight gain
Non-insulin injectable	Helps increase insulin production	Byetta Symlin Victoza	Exenatide Pramlintide Liraglutide	Nausea, vomiting

Medications

Goals

Setting goals helps people control their diabetes.
Goals should be S.M.A.R.T.

Specific

Measurable

Action Oriented

Realistic

Timely

Use this form to help you set goals for your medications.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

_____

Ways I will overcome or address these barriers are _____

_____

_____

The medications I take are _____

My doctor says I should take my medications at this time _____

Sick Day Care

When you are sick, even if it's only a common cold, blood sugar levels will go up. If you get sick, remember to pay special attention to your diabetes:

- Keep taking insulin and diabetes pills, even if you are throwing up.
- Check blood sugar often (every 4-6 hours is best).
- Increase fluids. Water is best. Drink 1 cup of fluids every hour while you are awake.
- Eat some carbohydrates (15 g every hour). These carbs are especially good for an upset stomach:
    - 1/2 cup fruit juice
    - 3/4 cup regular soda (not diet)
    - 1 1/2 cups sports drink
    - 6 saltines
    - 3/4 cup cream soup
    - 1/3 cup regular gelatin
    - 3 graham crackers
- Check any over-the-counter medicines for sugar content. Ask your doctor or pharmacist for sugar -free medicines.
- If you have any of these symptoms, call your doctor:
    - Blood sugar is over 250 mg/dl
    - Your cannot keep down food or fluids for more than 6 hours
    - You have difficulty breathing
    - You have a high temperature

Sick Day Care

Case Study

You wake up with the flu. Your body aches and you have a fever. You usually eat a hearty breakfast, but are not sure you can keep down any food this morning.

What should you do about eating?

_____

_____

_____

_____

What special things should you do since you are sick?

_____

_____

_____

_____

When should you call your doctor?

_____

_____

_____

_____

Acute (Short-Term) Complications

Hypoglycemia (Low Blood Sugar)

Hypoglycemia (blood sugar less than 70 mg/dl) can happen very quickly and can be very dangerous. In some extreme cases, hypoglycemia can cause fainting or coma.

Hypoglycemia: low blood sugar (less than 70 mg/dl)

Hypoglycemia is usually caused by:

- Not eating enough food.
- Waiting too long between meals or skipping meals.
- Taking too much medicine (usually insulin).
- Being more active than usual and not eating enough carbohydrates to make up for the extra activity.
- Drinking alcohol.

Know your signs of hypoglycemia and make sure your friends and family know. They may need to help you if you cannot help yourself.

Check the signs of hypoglycemia that apply to you:

- ☐ Hunger
- ☐ Trembling
- ☐ Sweaty
- ☐ Weakness
- ☐ Irritable
- ☐ Headache
- ☐ Confusion
- ☐ Rapid heart beat
- ☐ Dizziness
- ☐ Night sweats
- ☐ Nightmares
- ☐ Feeling tired, irritable, or confused when you wake up.

Acute (Short-Term) Complications

Hypoglycemia (Low Blood Sugar)

Treatment:

- Check your blood sugar. If it is less than 70 mg/dl, try to raise it. If you cannot check it but you have symptoms, treat anyway.
- Eat 15 g of a fast-acting sugar (one of the following):
    - 1 tablespoon of honey or pure sugar
    - 3 pieces of hard candy
    - 4-6 oz of juice (about 1/2 cup)
    - 1/2 can of regular soda
    - 3-4 glucose tablets
- Check your blood sugar again after 15 minutes. If it is still less than 70 mg/dl, eat 15 g of fast-acting sugar again.

If you usually have hypoglycemia at night, eat a snack just before bed.

Ask your doctor if you are at risk for severe hypoglycemia. You may need to carry a glucagon pen. Glucagon is used to treat severe hypoglycemia, but you need a prescription.

If you experience hypoglycemia 2 days in a row call your doctor. Your doctor may need to adjust your medication, meal plan, or exercise plan. **Note: never adjust these without talking with your doctor first.**

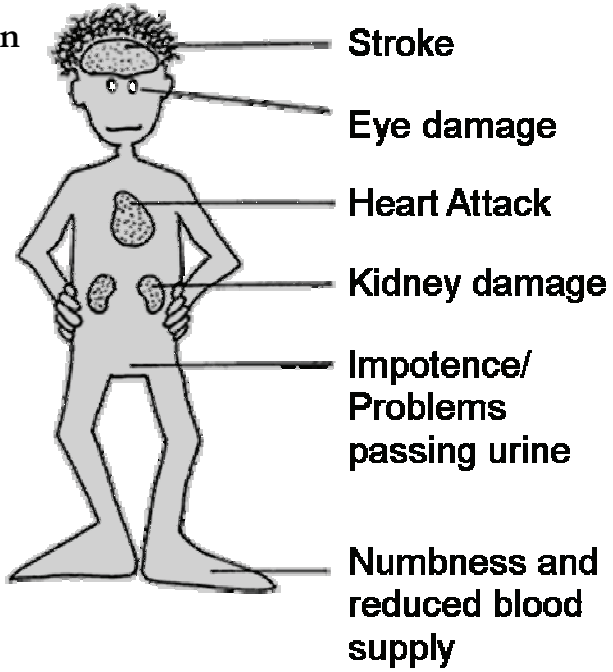
Always carry fast-acting sugar in case of hypoglycemia.

Chronic (Long-Term) Complications

Common Long-Term Complications

Having blood sugar that is often out of target range can cause both short-term and long-term complications. **Keeping your blood sugar within range can help prevent these conditions.**

- Heart and blood vessel problems
- Eye damage (Retinopathy)
- Kidney damage (Nephropathy)
- Nerve damage (Neuropathy)
- Teeth, gum, and skin infections
- Problems with your legs and feet



Other risk factors can contribute to the long-term complications listed above. Which risk factors do you have? (check all that apply)

- ☐ Smoking
- ☐ Being overweight
- ☐ Having high cholesterol
- ☐ Drinking alcohol
- ☐ Having high blood pressure

Chronic (Long-Term) Complications

Heart and Blood Vessel Problems

Over time, fat sticks to the inside of blood vessels. This causes blood vessels to get hard and narrow, which means that blood cannot flow through easily (poor circulation).

Have your blood pressure checked every month. It is free at fire stations and most drug stores. See page 78 for target levels.

If you have any of these get medical care:

- Chest pain or pressure
- Shortness of breath
- Irregular heartbeat
- Slurred speech
- Numbness/weakness in one arm or leg
- Pain or cramping in buttocks, thighs, or calves

Results of poor circulation	Symptoms
Amputation of legs and feet	• Pain or cramps when walking • Sores or cuts that heal slowly • Hair loss • Thick toenails • Shiny skin • Cold feet
Heart attack	• Pain in chest, back, arms, or jaw • Nausea • Shortness of breath • Dizziness • Sweating
Stroke	• Weakness or numbness on 1 side • Blurry vision • Severe headache • Difficulty talking

Chronic (Long-Term) Complications

Eye Damage (Retinopathy)

High blood sugar can cause eye problems. **Keep your blood sugar in your target range to prevent these eye problems.**

Broken blood vessels: High blood sugar levels make blood vessels weak and cause them to break. The blindness caused by the broken blood vessels can be treated with laser surgery.

Cataracts: Sugar can build up in the lens of the eye and cause swelling and clouding. This is called cataracts and can be removed by surgery.

Glaucoma: Glaucoma is caused when eye fluid pressure is too high. This can be treated with medication.

Have a dilated eye exam every year to check for early signs of damage.

Complication	Symptoms	When to Get Medical Care
Eye Disease	• Blurry vision • Little specks appear to be floating before your eyes	• Seeing black spots • Seeing cobwebs • Seeing flashing lights • Having sudden vision loss • Having sharp eye pain

Chronic (Long-Term) Complications

Kidney Damage (Nephropathy)

High blood sugar levels make the kidneys work harder. After many years of working too hard, the kidneys stop working properly. **Keep your blood sugar in your target range to prevent kidney damage.**

You can help prevent kidney disease by keeping your blood sugar and blood pressure under control.

Get your urine checked for signs of damage every year. Your doctor may call this a microalbumin test.

Complication	Symptoms	When to Get Medical Care
Kidney Damage	No symptoms until damage is severe	• Noticing change in color or odor (smell) of urine • Having pain or burning when urinate • Having trouble urinating

Chronic (Long-Term) Complications

Nerve Damage (Neuropathy)

Nerves control all body systems. High blood sugar can damage nerves over time. Once damaged, nerves cannot be repaired. **Keep your blood sugar in your target range and take good care of your feet to prevent nerve damage.**

Nerve damage location	Symptoms
General nerve damage	• Dizziness when you stand • Numb or tingling hands or feet
Legs and feet usually affected first	• Pain • Numbness • Tingling • Burning • Less sensitivity or increased sensitivity (feeling)
Stomach damage causes gastroparesis	• Diarrhea • Nausea • Excessive bloating • Weight loss • Loss of appetite • Constipation
Bladder	• Difficulty controlling urine • Frequent bladder infections
Sexual organs can be treated by a doctor	• Difficulty getting or holding erection (impotence) • Vaginal dryness • Vaginal infections (yeast infection is most common)

Chronic (Long-Term) Complications

Problems with legs and feet

Poor circulation can prevent infections from healing or cause nerve damage. It is very important that people with diabetes take good care of their feet.

- Keep feet clean
- Dry thoroughly
- Wear clean socks
- Shake shoes out to remove small things that could cut or damage feet
- Buy new shoes in the afternoon to get a better fit
- Inspect feet every day
- Always wear shoes
- Trim and file toenails
- Do not expose feet to extreme temperatures
- Do not pull off loose pieces of skin
- Do not cut nails too short
- Do not wear socks that have holes
- Do not wear sandals
- Do not wear shoes that are tight
- Do not wear garters (elastic) or tight socks
- Do not use heating pads or hot water bottles

Complication	Symptoms	When to Get Medical Care
Foot problems	• Cuts, bruises • Dryness, peeling • Change in normal color or shape • Ingrown toenails • Corns, calluses, blisters • Unpleasant odor (smell) • Discharge or drainage	• Sores on feet • Change in foot color

Chronic (Long-Term) Complications

Teeth and gum infections

High blood sugar levels can cause cavities and gum disease. Prevent teeth and gum problems:

- Brush at least twice a day.
- Use a soft toothbrush. Hard brushes wear away gums and tooth enamel.
- Use fluoride toothpaste.
- Floss at least once a day.
- If you are unable to brush rinse your mouth with anti-plaque mouth wash after eating .
- Have a dental cleaning and exam every 6 months. Remind your dentist that you have diabetes.

Complication	Symptoms
Teeth and gum infections	• Bad breath • Swollen, red, or tender gums • Gums shrinking from teeth • Bleeding gum during routine brushing and flossing • Change in bite or denture fit • Loose teeth • Tooth loss

Chronic (Long-Term) Complications

Skin infections

Skin serves as a barrier to keep germs out. Dry, cracked skin allows germs in. You can get infections even without open cuts or sores. Protect your skin from infections:

- Clean regularly with a mild soap.
- Dry well after cleaning.
- Apply lotion to prevent dryness.
- Drink water to prevent dryness.
- Use sunscreen.
- Wash open cuts and sores, and treat with antibiotic cream.

Complication	Symptoms	When to Get Medical Care
Skin infections	• Pain • Redness • Fever • Drainage from sores • Warmth around sore • Swelling	• Sores or infections do not heal after a few days • Sore or infections get worse

Chronic (Long-Term) Complications

Goals

Setting goals helps people control their diabetes.
Goals should be S.M.A.R.T.

Specific

Measurable

Action Oriented

Realistic

Timely

Use this form to help you set goals for preventing long-term complications.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

_____

Ways I will overcome or address these barriers are _____

_____

_____

Chronic (Long-Term) Complications

Case Study

Your father-in-law had diabetes for many years and had a leg amputated before he died. You are really worried the same thing could happen to you.

What can you do to prevent it?

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Healthy Eating

The Basics

Healthy eating is an important part of managing your diabetes. Your blood sugar is affected by what you eat, when you eat, and how much you eat.

Someone with diabetes does not need to have a special "diabetes diet". The foods that people with diabetes should eat are the same foods that everyone should eat to be healthy.

Healthy eating can also help you lose weight, lower your blood pressure, and lower your cholesterol.

In the next few pages, you will learn how to eat right. Here are a few basics to help you get started:

- Eat fewer carbohydrates.
- Eat smaller portions.
- Eat meats with only a little fat. These are called lean meats.
- Eat foods with a lot of fiber (like vegetables, fruits, or whole grain bread and whole grain pasta).
- Eat fish at least once a week. Salmon and trout are best. Tuna is also good. Catfish and tilapia are not very good.
- Eat less salt.
- Avoid fried foods.

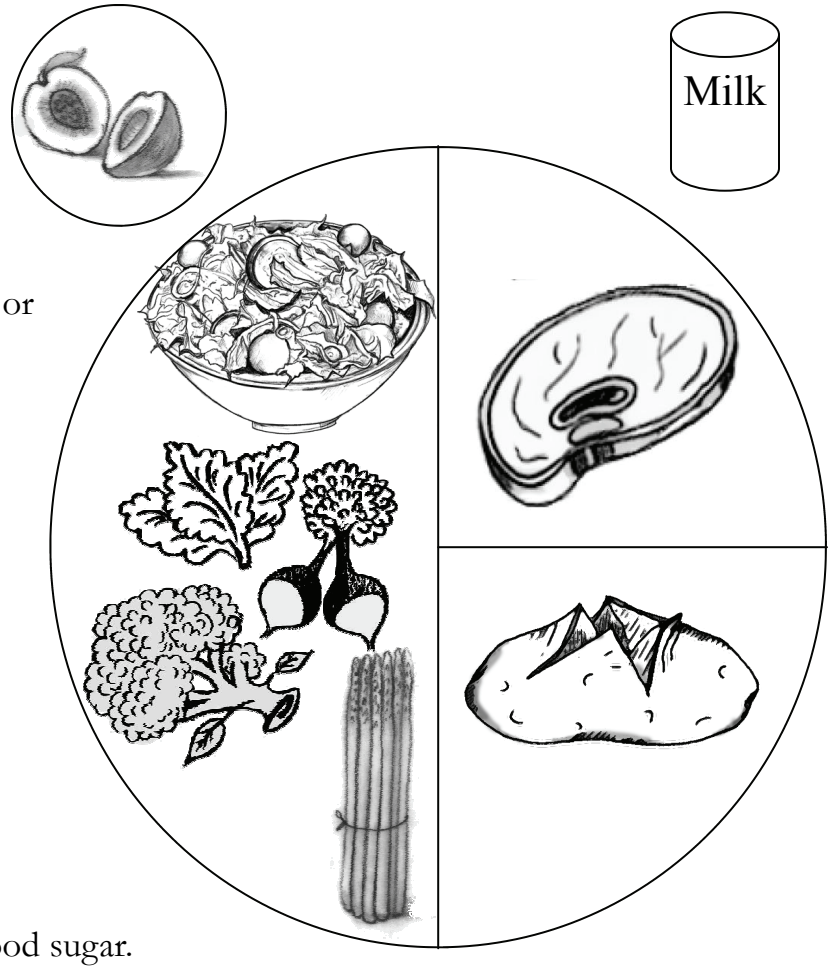
Healthy Eating

Meal Planning

The easiest way to control portions and plan a balanced meal is the **plate method**.

- Use 1/2 of the plate for vegetables.
- Use 1/4 of the plate for starches (like a baked potato, bread, or pasta).
- Use 1/4 of the plate for lean meat or fish.
- Add 1 serving of fruit.
- Add 1 cup of skim milk if you choose.

Use a 9-inch plate to help control portions. If you are still hungry, add more vegetables.



Eating Tips

Eating is part of controlling your blood sugar. Remember these tips to help control your blood sugar:

- Do not skip meals.
- Eat every 4-5 hours.
- Eat snacks.
- Eat at about the same time every day.

Healthy Eating

Carbohydrates

Your body turns carbohydrates (sometimes called carbs) into sugar. Your body needs some carbohydrates to give us energy, but too many carbohydrates can raise blood sugar levels too high.

Carbohydrates are in fruit, milk, and starchy foods.

Keeping track of the amount of carbohydrates you eat can help you keep your blood sugar within your target range. Your doctor or registered dietitian can help you determine how many carbohydrates you should eat at each meal.

Average number of carbs that most people need:

	Women	Men
Each meal	3 to 4 carb choices (45 to 60 g of carbs)	4 to 5 carb choices (60 to 75 g of carbs)
Snacks	1 carb choice (15 g of carbs)	1 to 2 carb choices (15 to 30 g of carbs)

Carb Choice: a way to measure carbohydrates in food. One carb choice is equal to 15 grams (g) of carbohydrates.
Carb is short for carbohydrate.

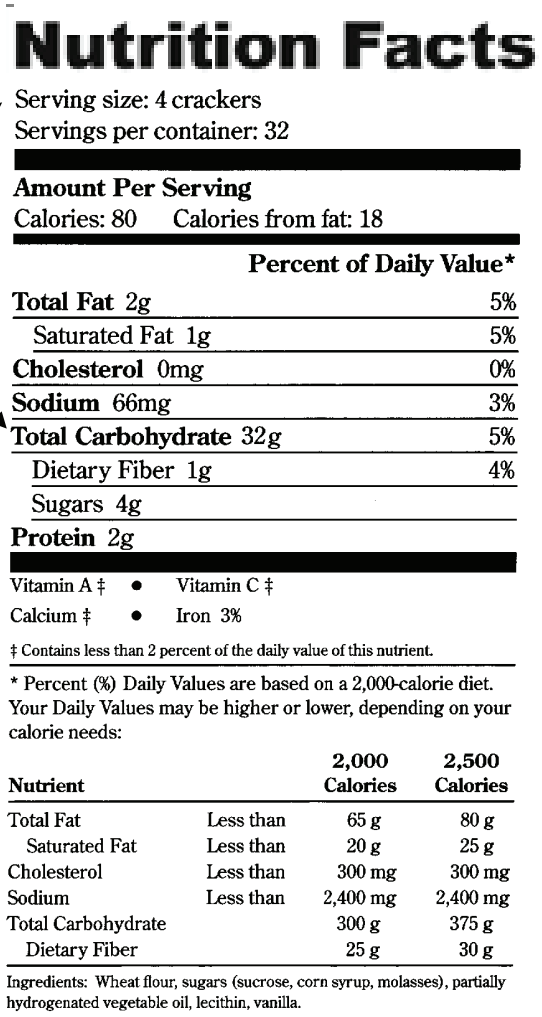
Healthy Eating

Reading Food Labels

One way to know how many carbohydrates are in your food is by reading nutrition labels on food packaging. The nutrition label can also tell you other things about your food.

Check the serving size first. The information on this label is for 4 crackers.

This food has 32 grams of total carbohydrates per serving (4 crackers)



Nutrition Facts

Serving size: 4 crackers
Servings per container: 32

Amount Per Serving
Calories: 80 Calories from fat: 18

	Percent of Daily Value*
Total Fat 2g	5%
Saturated Fat 1g	5%
Cholesterol 0mg	0%
Sodium 66mg	3%
Total Carbohydrate 32g	5%
Dietary Fiber 1g	4%
Sugars 4g	
Protein 2g	

Vitamin A ‡ • Vitamin C ‡
Calcium ‡ • Iron 3%

‡ Contains less than 2 percent of the daily value of this nutrient.

* Percent (%) Daily Values are based on a 2,000-calorie diet. Your Daily Values may be higher or lower, depending on your calorie needs:

Nutrient		2,000 Calories	2,500 Calories
Total Fat	Less than	65 g	80 g
Saturated Fat	Less than	20 g	25 g
Cholesterol	Less than	300 mg	300 mg
Sodium	Less than	2,400 mg	2,400 mg
Total Carbohydrate		300 g	375 g
Dietary Fiber		25 g	30 g

Ingredients: Wheat flour, sugars (sucrose, corn syrup, molasses), partially hydrogenated vegetable oil, lecithin, vanilla.

To determine how many carb choices are in this food, divide the total carbohydrates by 15 grams.

$$\frac{\text{32 grams (total carbs in this food)}}{\text{15 grams (carbs in 1 carb choice)}} = \text{2 carb choices}$$

Use this chart to quickly estimate the number of carb choices:

Grams of Carbs	Carb Choices
0-5 g	Do not count
6-10 g	1/2 carb choice
11-20 g	1 carb choice
21-25 g	1 1/2 carb choices
26-35 g	2 carb choices

Healthy Eating

Reading Food Labels

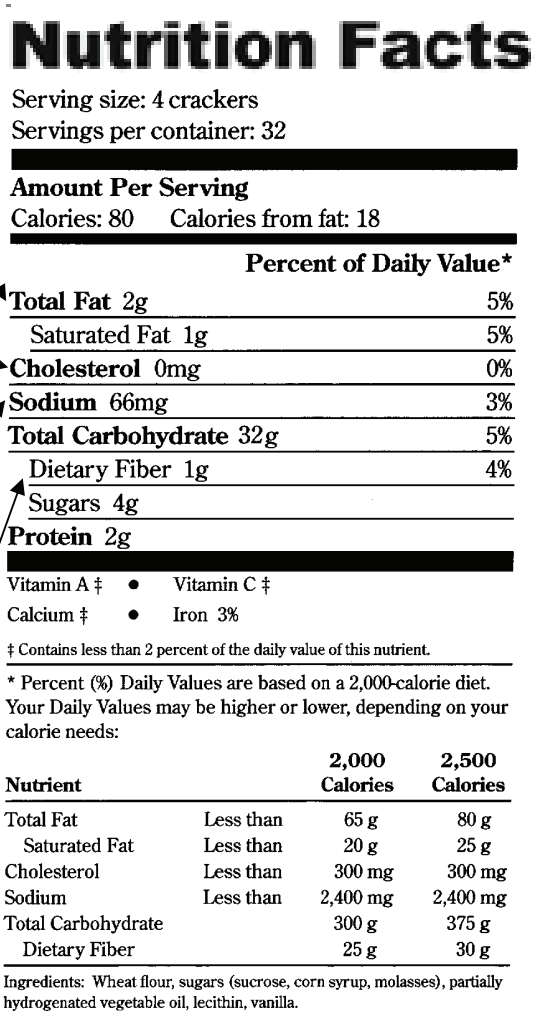
Many people with diabetes also have other chronic conditions, like high blood pressure and high cholesterol. Reading food labels can also help you find foods that are good for preventing these conditions.

Look for foods with lower total fat. Monounsaturated fat is the best kind. This is not always specifically listed on food labels. Avoid transfats.

High cholesterol contributes to heart disease. Limit cholesterol for better heart health. Try to eat less than 200 mg per day.

Too much sodium can cause high blood pressure. Try to eat less than 2,300 mg (1 tsp) per day. Choose side dishes with less than 300 mg. Choose main dishes with less than 800 mg.

Fiber may help reduce cholesterol levels and prevent heart disease. It is also important in bowel function. Look for foods that are high in fiber. Remember: Only use the amount of total carbohydrates for calculating carb choice. Fiber is included in this total already.



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Total Carbohydrate 32g	5%
Dietary Fiber 1g	4%
Sugars 4g	
Protein 2g	

Vitamin A ‡ • Vitamin C ‡
Calcium ‡ • Iron 3%

‡ Contains less than 2 percent of the daily value of this nutrient.

* Percent (%) Daily Values are based on a 2,000-calorie diet. Your Daily Values may be higher or lower, depending on your calorie needs:

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Sodium	Less than	2,400 mg	2,400 mg
Total Carbohydrate		300 g	375 g
Dietary Fiber		25 g	30 g

Ingredients: Wheat flour, sugars (sucrose, corn syrup, molasses), partially hydrogenated vegetable oil, lecithin, vanilla.

Healthy Eating

What Labels Really Mean

Industry Term	What It Really Means
Calorie free	Less than 5 calories per serving
Low calorie	40 calories or less per serving
Reduced calorie	At least 25% fewer calories per serving than the usual product
Sugar free	Less than 1/2 g of sugar per serving
Fat free	Less than 1/2 g of fat per serving and no added fat or oil
Low fat	3 g or less of fat per serving or no more than 30% calories from fat
Reduced fat	At least 25% less fat per serving than the usual product
Sodium/salt free	Less than 5 mg of sodium per serving
Low sodium	Less than 140 mg of sodium per serving
Reduced sodium	At least 25% less sodium per serving than the usual product
Low cholesterol	20 mg or less of cholesterol per serving and 2 g or less saturated fat per serving
High fiber	5 g or more per serving
Light, lite	1/3 fewer calories or 50% less fat per serving than usual product

Healthy Eating

Carbohydrate Choices

Another way to know how many carbohydrates are in your food is by using the exchange tables on the following pages.

Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

Food (Bread, cereal, grain, pasta)	Serving Size
Bagel	1/3 large bagel or 1oz
Biscuit	2 1/2 inches across
Bread	1 slice or 1oz
Hamburger or hotdog bun	1/2 bun or 1oz
Crackers (saltine or round butter)	4-6 crackers
English muffin	1/2 muffin
Melba toast	4 slices
Oyster crackers	20 crackers
Pancake or waffle	4 inches across
Stuffing	1/3 cup
Tortilla	6 inches across
Unsweetened cold cereal	3/4 cup
Sweetened cold cereal	1/2 cup
Cooked oatmeal, grits	1/2 cup
Granola	1/4 cup
Cooked Grains (barley, pasta, rice, couscous)	1/3 cup

Healthy Eating

Carbohydrate Choices

Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

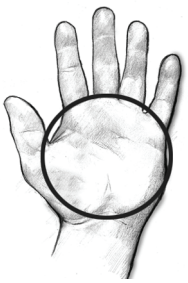
Food (Starchy Vegetables)	Serving Size
Breadfruit	1/4 cup small cubes
Corn, peas	1/2 cup
Corn on the cob (large)	1/2 cob
Mixed vegetables with corn, peas or pasta	1 cup
Baked potato	1 small or 1/4 large (3 oz)
Mashed potatoes	1/2 cup
Pumpkin (cooked)	1 cup small cubes
Winter squash (acorn, butternut)	1 cup
Sweet potato	1/2 cup
Yam	1/2 cup
Plantain	1/3 cup
Succotash	1/2 cup

Healthy Eating

Carbohydrate Choices

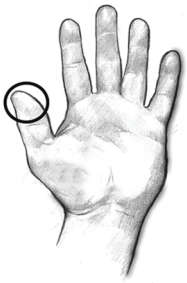
Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

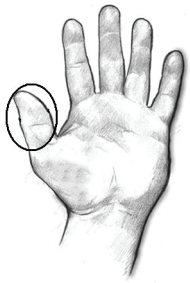
Food (Dried beans, peas, lentils)	Serving Size
Baked beans	1/3 cup
Beans (black, garbanzo, kidney, navy, lima, pinto, white)	1/2 cup cooked
Lentils	1/2 cup cooked
Hummus	1/3 cup
Refried beans	1/2 cup
Peas (black-eyed, split)	1/2 cup cooked



Your palm is about 3 oz.

The tip of your thumb is about 1 tsp.





Your thumb is about 1 tbsp.

Your fist is about 1 cup.

Healthy Eating

Carbohydrate Choices

Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

Food (Fruit)	Serving Size
Apple, orange	1 small
Apricots	4 whole or 8 dried halves
Banana (extra small)	1 banana or 4 oz
Blueberries	3/4 cup
Canned fruit in juice	1/2 cup
Cantaloupe, Honeydew melon	1 cup cubes
Cherries	12 cherries
Dried fruit	2 tbsp
Grapefruit (large)	1/2 grapefruit
Grapes (small)	17 grapes
Juice (prune or grape, fruit juice blends, 100% juice)	1/3 cup
Juice (unsweetened)	1/2 cup
Mango	1/2 small or 1/2 cup
Papaya	1/2 small or 1 cup cubes
Passion fruit	1/4 cup
Pear (large)	1/2 pear
Pineapple	3/4 cup
Raspberries	1 cup
Strawberries, Watermelon	1 1/4 cup

Healthy Eating

Carbohydrate Choices

Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

Food (Milk)	Serving Size
Fat-free or low-fat milk (soy or cow's)	1 cup
Fat-free plain yogurt	2/3 cup
Fat-free, artificially sweetened flavored yogurt	2/3 cup

Food (Snacks)	Serving Size
Animal crackers	8 crackers
Gingersnaps	3 cookies
Graham crackers	3 squares
Rice cakes	2 cakes
Popped popcorn	3 cups
Pretzels	3/4 oz
Snack chips	15-20 chips
Vanilla wafers	5 wafers

Healthy Eating

Carbohydrate Choices

Each serving listed equals 15 g of carbohydrates, or 1 carb choice. Remember: Most men should eat 4-5 carb choices per meal and most women should eat 3-4 carb choices per meal.

Food (Sweets)	Serving Size
Brownie (unfrosted)	1 1/4-inch square or 1oz
Cake (unfrosted)	2-inch square or 1oz
Cookies (sandwich type)	2 small
Fruit juice bars	1 bar or 3 oz
Ice cream	1/2 cup
Jam/jelly	1 tbsp
Muffin	1/4 of 4-oz muffin or 1oz
Pancake syrup	1tbsp
Regular gelatin	1/2 cup
Regular soda	1/2 cup
Sports drinks	1 cup
Frozen yogurt	1/2 cup
Cupcake (small, frosted)	1 3/4 cupcake
Doughnut (glazed)	2-3oz
Chocolate milk	1 cup
Pumpkin pie	1/8 pie
Rice pudding, Sweet rice with milk	1/2 cup
Sherbet	1/2 cup

Healthy Eating

Carbohydrate Choices

Free Foods: These foods have fewer than 5 g of carbohydrates per serving. You may have 1 serving without counting against your carb choice allowance. Remember: Most men can have 4-5 carb choices per meal and most women can have 3-4 carb choices per meal.

Food (Condiments)	Serving Size
Creamers (non-dairy powdered)	2 tbsp
Cream cheese (fat-free)	1 tbsp
Mayonnaise (fat-free)	1 tbsp
Sour cream (fat-free)	1 tbsp
Whipped topping (regular)	1 tbsp
Whipped topping (light)	2 tbsp
Cocoa powder (unsweetened)	1 tbsp
Syrup (sugar-free)	2 tbsp
Yogurt (plain)	2 tbsp
Salsa	1/4 cup
Catsup	1 tbsp
Taco sauce	1 tbsp
Dill pickles	1 large
Pickle relish (sweet)	1 tbsp
Lemon (fresh)	1 whole

Healthy Eating

Nonstarchy Vegetables

Some vegetables have a lot of carbohydrates (see page 56) but most vegetables have very few carbohydrates. The vegetables listed below do not have many carbohydrates. They have 5 grams of carbohydrate or less per 1/2 cup serving (or 1 cup serving uncooked). You can eat as much of these vegetables as you want.

- Amaranth or Chinese spinach
- Artichoke
- Asparagus
- Baby corn
- Bamboo shoots
- Beans (green wax, Italian)
- Bean sprouts
- Beets
- Broccoli
- Brussels sprouts
- Cabbage (green, bok choy, Chinese)
- Carrots
- Cauliflower
- Celery
- Chayote
- Coleslaw (packaged, no dressing)
- Cucumber
- Eggplant
- Greens (collard, kale, mustard, turnip)
- Hearts of palm
- Jicama
- Kohlrabi
- Leeks
- Mushrooms
- Okra
- Onions
- Pea pods
- Peppers
- Radishes
- Rutabaga
- Salad greens (chicory, endive, escarole, lettuce, romaine, spinach, arugula, radicchio, watercress)
- Sauerkraut
- Sugar snap peas
- Squash (summer, zucchini)
- Swiss chard
- Tomato
- Water chestnuts
- Yard-long beans
- Zucchini

Healthy Eating

Meal Plan Worksheet

Planning out your meals will help you know how many carbs you are eating.

Meal: Dinner Date: August 13

	Food	# of Carb Choices	Grams of Carbs
Carbohydrates	Fruit: Strawberries	1	15 g
	Whole wheat hamburger bun	2	30 g
	Grilled acorn squash	1	15 g
	Total Carbohydrates	4	60 g
Vegetables	Tomato	0	1 g
	Collard greens	0	8 g
	Lettuce	0	0 g
	Total Vegetables	0	9 g
Meat (protein)	Lean hamburger		
	Total Meats		

Nonstarchy vegetables have less than 5 grams of carbohydrate per serving, so they are free foods. They do not count toward your total carbohydrate count.

Carb choices and grams of carbs only matter for carbohydrates. Leave these columns blank for protein.

Healthy Eating

Meal Plan Worksheet

Fill in this sample meal plan to help you know how many carbohydrates are in your meal.

Meal: _____ Date: _____

	Food	# of Carb Choices	Grams of Carbs
Carbohydrates	Fruit: _____		
	Total Carbohydrates		
Meat (protein)			
	Total Meats		
Vegetables			
	Total Vegetables		

Healthy Eating

Maintaining a healthy body weight is important for everyone. Losing weight helps improve blood sugar level, blood pressure, and cholesterol. Maintaining a healthy body weight also helps your body use insulin better.

Weight is determined by many factors:

- Food you eat
- Activity level
- Body build
- Body chemistry

You can change some of these, like the food you eat and your activity level. Some things you cannot change, like your body build and body chemistry.

Calories

Calorie: used by the body as energy.

Our bodies use calories for energy. To keep your same weight, you must eat and drink the same amount of calories as you burn for energy. To lose weight, you must eat and drink fewer calories than you burn for energy. All calories come from 3 main nutrients: **fats**, **proteins**, and **carbohydrates**.

Fats: Help cells work properly and provides energy.

Foods with fats:

- Meat
- Oils

Proteins: Build and repair tissue.

Foods with proteins:

- Meat
- Fish
- Eggs
- Cheese

Carbohydrates: Turned into sugar for energy.

Foods with carbohydrates:

- Fruits
- Milk
- Bread, cereals, grains
- Starches
- Sugar

Healthy Eating

Fats

Fats help keep our hair and skin healthy and help body cells work properly. They also give energy and reserve energy. Our bodies need some fat to run properly, but too much fat can cause health problems. There are 3 kinds of fats: **monounsaturated**, **polyunsaturated**, and **saturated**.

Monounsaturated fats are your best choice. They help lower cholesterol and are good for your heart. They also help your brain work properly. Try to eat more of these than any other kind.

Monounsaturated fat source:	**Serving size:**
Avocado	2 tablespoons (1 oz)
Nut butters (trans-fat free)	1.5 tablespoons
Almonds	6 nuts
Cashews	6 nuts
Peanuts	10 nuts
Pecans	4 halves
Canola oil, olive oil, peanut oil	1 teaspoon
Black olives (ripe)	8 large
Green olives (stuffed)	10 large

Healthy Eating

Fats

Polyunsaturated fats are better than saturated fats. They lower both the good and bad cholesterol. Eat only a little bit of these

Polyunsaturated fat source:	**Serving size:**
Margarine (lower-fat spread)	1 tablespoon
Margarine (stick, tub, or squeeze)	1 teaspoon
Mayonnaise (reduced-fat)	1 tablespoon
Mayonnaise (regular)	1 teaspoon
Corn oil, cottonseed oil, flaxseed oil, grape seed oil, safflower oil, soybean oil, sunflower oil	1 teaspoon
Salad dressing (reduced fat)	2 tablespoons
Salad dressing (regular)	1 tablespoon

Saturated fats are very bad for you. They raise your cholesterol. Try to avoid these.

Saturated fat source:	**Serving size:**
Bacon	1 slice
Butter	1 teaspoon
Cream, half and half	2 tablespoons
Cream cheese (reduced fat)	1.5 tablespoon (3/4 oz)
Cream cheese (regular)	1 tablespoon (1/2 oz)
Sour cream (reduced fat or light)	3 tablespoons
Sour cream (regular)	2 tablespoons

Healthy Eating

Proteins

Proteins build and repair body tissue. Most protein comes from animal products, but some vegetables also have protein. These foods have lots of protein:

- Milk
- Meat
- Eggs
- Cheese
- Fish
- Beans
- Soy
- Tofu
- Nuts
- Seeds

Food that comes from animals also has cholesterol. Eat a vegetable protein instead of a meat protein at least once per week. This will help lower your cholesterol. It is also less expensive than many meats.

What Kinds of Proteins Are Best?

Choose proteins with less fat (also called lean proteins or lean meat):

- Skim (fat free) or low fat milk and cheese
- White meats like chicken. Remember to remove the skin because it has a lot of fat.
- Lean beef
- Fish, especially salmon and trout. These have monounsaturated fat, which is good for your heart. Tuna has some monounsaturated fat, but not as much as salmon and trout.

Healthy Eating

Sodium (Salt)

Sodium (salt) can cause high blood pressure and heart disease. Most people should eat less than 2,300 mg per day (1 teaspoon). If you are being treated for hypertension, ask your doctor about how much salt you should eat.

Reducing the amount of salt you eat does not mean your food will be bland. Consider using the following to add flavor without adding salt:

- Fresh onions
- Fresh garlic
- Low sodium bouillon
- Lemon
- Parsley
- Bay leaves
- Hot sauce (Tabasco)
- Chives
- Basil
- Oregano
- Celery
- Sage
- Peppers (bell, red, green)

Healthy Eating

Fiber (Roughage)

Many people with diabetes also have high cholesterol and high blood pressure. Fiber can help lower cholesterol and blood pressure. It also helps keep you regular and feel full for longer. Anything that is a plant (or is made from a plant) fiber. These foods have a lot of fiber:

- Fruits (especially apples, bananas, pears, oranges, and berries)
- Beans and peas (also called legumes)
- Vegetables
- Whole grain flour (not white flour)
- Whole grain pasta (not regular pasta)
- Nuts
- Seeds

Recipe Substitutes

Many of our favorite foods can increase our risk for heart disease and high blood pressure. Consider using these substitutes to keep the flavor and make foods healthier:

Instead of	Replace with
Bacon, shortening	Bacon flavored soy bits
Butter, lard	Olive oil, peanut oil, canola oil
Fat back	Lean ham, turkey bacon
Oil or margarine	Non-stick cooking spray
Butter	Butter-flavored sprinkles
Cream	Evaporated skim milk

Healthy Eating

Body Mass Index (BMI) Chart for Adults

Obese (>30) | Overweight (25-30) | Normal (18.5-25) | Underweight (<18.5)

HEIGHT in feet/inches and centimeters

WEIGHT		4'8"	4'9"	4'10"	4'11"	5'0"	5'1"	5'2"	5'3"	5'4"	5'5"	5'6"	5'7"	5'8"	5'9"	5'10"	5'11"	6'0"	6'1"	6'2"	6'3"	6'4"	6'5"
lbs	(kg)	142cm		147	150	152	155	157	160	163	165	168	170	173	175	178	180	183	185	188	191	193	196
260	**(117.9)**	**58**	**56**	**54**	**53**	**51**	**49**	**48**	**46**	**45**	**43**	**42**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**32**	**31**
255	(115.7)	57	55	53	51	50	48	47	45	44	42	41	40	39	38	37	36	35	34	33	32	31	30
250	**(113.4)**	**56**	**54**	**52**	**50**	**49**	**47**	**46**	**44**	**43**	**42**	**40**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**30**
245	(111.1)	55	53	51	49	48	46	45	43	42	41	40	38	37	36	35	34	33	32	31	31	30	29
240	**(108.9)**	**54**	**52**	**50**	**48**	**47**	**45**	**44**	**43**	**41**	**40**	**39**	**38**	**36**	**35**	**34**	**33**	**33**	**32**	**31**	**30**	**29**	**28**
235	(106.6)	53	51	49	47	46	44	43	42	40	39	38	37	36	35	34	33	32	31	30	29	29	28
230	**(104.3)**	**52**	**50**	**48**	**46**	**45**	**43**	**42**	**41**	**39**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**30**	**29**	**28**	**27**
225	(102.1)	50	49	47	45	44	43	41	40	39	37	36	35	34	33	32	31	31	30	29	28	27	27
220	**(99.8)**	**49**	**48**	**46**	**44**	**43**	**42**	**40**	**39**	**38**	**37**	**36**	**34**	**33**	**32**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**
215	(97.5)	48	47	45	43	42	41	39	38	37	36	35	34	33	32	31	30	29	28	28	27	26	25
210	**(95.3)**	**47**	**45**	**44**	**42**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**28**	**27**	**26**	**26**	**25**
205	(93.0)	46	44	43	41	40	39	37	36	35	34	33	32	31	30	29	29	28	27	26	26	25	24
200	**(90.7)**	**45**	**43**	**42**	**40**	**39**	**38**	**37**	**35**	**34**	**33**	**32**	**31**	**30**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**24**
195	(88.5)	44	42	41	39	38	37	36	35	33	32	31	31	30	29	28	27	26	26	25	24	24	23
190	**(86.2)**	**43**	**41**	**40**	**38**	**37**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**24**	**23**	**23**
185	(83.9)	41	40	39	37	36	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	23	22
180	**(81.6)**	**40**	**39**	**38**	**36**	**35**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**
175	(79.4)	39	38	37	35	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21
170	**(77.1)**	**38**	**37**	**36**	**34**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**	**21**	**20**
165	(74.8)	37	36	34	33	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	21	20	20
160	**(72.6)**	**36**	**35**	**33**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**24**	**23**	**22**	**22**	**21**	**21**	**20**	**19**	**19**
155	(70.3)	35	34	32	31	30	29	28	27	27	26	25	24	24	23	22	22	21	20	20	19	19	18
150	**(68.0)**	**34**	**32**	**31**	**30**	**29**	**28**	**27**	**27**	**26**	**25**	**24**	**23**	**23**	**22**	**22**	**21**	**20**	**20**	**19**	**19**	**18**	**18**
145	(65.8)	33	31	30	29	28	27	27	26	25	24	23	23	22	21	21	20	20	19	19	18	18	17
140	**(63.5)**	**31**	**30**	**29**	**28**	**27**	**26**	**26**	**25**	**24**	**23**	**23**	**22**	**21**	**21**	**20**	**20**	**19**	**18**	**18**	**17**	**17**	**17**
135	(61.2)	30	29	28	27	26	26	25	24	23	22	22	21	21	20	19	19	18	18	17	17	16	16
130	**(59.0)**	**29**	**28**	**27**	**26**	**25**	**25**	**24**	**23**	**22**	**22**	**21**	**20**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**
125	(56.7)	28	27	26	25	24	24	23	22	21	21	20	20	19	18	18	17	17	16	16	16	15	15
120	**(54.4)**	**27**	**26**	**25**	**24**	**23**	**23**	**22**	**21**	**21**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**15**	**14**
115	(52.2)	26	25	24	23	22	22	21	20	20	19	19	18	17	17	16	16	16	15	15	14	14	14
110	**(49.9)**	**25**	**24**	**23**	**22**	**21**	**21**	**20**	**19**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**14**	**13**	**13**
105	(47.6)	24	23	22	21	21	20	19	19	18	17	17	16	16	16	15	15	14	14	13	13	13	12
100	**(45.4)**	**22**	**22**	**21**	**20**	**20**	**19**	**18**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**14**	**14**	**14**	**13**	**13**	**12**	**12**	**12**
95	(43.1)	21	21	20	19	19	18	17	17	16	16	15	15	14	14	14	13	13	13	12	12	12	11
90	**(40.8)**	**20**	**19**	**19**	**18**	**18**	**17**	**16**	**16**	**15**	**15**	**15**	**14**	**14**	**13**	**13**	**13**	**12**	**12**	**12**	**11**	**11**	**11**
85	(38.6)	19	18	18	17	17	16	16	15	15	14	14	13	13	13	12	12	12	11	11	11	10	10
80	**(36.3)**	**18**	**17**	**17**	**16**	**16**	**15**	**15**	**14**	**14**	**13**	**13**	**13**	**12**	**12**	**11**	**11**	**11**	**11**	**10**	**10**	**10**	**9**

Note: BMI values rounded to the nearest whole number. BMI categories based on CDC (Centers for Disease Control and Prevention) criteria.

www.vertex42.com BMI = Weight[kg] / (Height[m] x Height[m]) = 703 x Weight[lb] / (Height[in] x Height[in])

Sample 2,000 Calorie Per Day Meal Plan

		Food	# of Carb Choices	Grams of Carbs	# of Calories
Breakfast	Carbohydrates	Fruit : blueberries	1	15	84
		1 cup bran flake cereal	2	30	120
		1 cup skim milk	1	15	91
		Total Carbohydrates	**3**	**60**	
	Meat (protein)	1 oz mozzarella stick			72
		Total Meats			
Snack	Carbohydrates	16 Animal crackers	2	30	120
		Total Carbohydrates	**2**	**30**	
Lunch	Vegetables	1 cup cooked green beans with 1tbsp low-fat margarine	0	5	135
		Total Vegetables	0	5	
	Carbohydrates	Fruit: 1 small pear	1	15	81
		1 hamburger bun with 1tbsp low-fat mayonnaise	2	30	145
		Total Carbohydrates	**3**	**50**	
	Meats (protein)	1 veggie patty			110
		Total Meats			
Dinner	Vegetables	1 cup cooked brussels sprouts	0	5	56
		Total Vegetables	0	5	
	Carbohydrates	Fruit: 1 cup cantaloupe	1	15	53
		1 cup wild rice	3	45	166
		1 cup skim milk	1	15	91
		Total Carbohydrates	**5**	**80**	
	Meat (protein)	3oz baked salmon			175
		Total Meats			
Snack	Carbohydrates	Sandwich grilled with 1tbsp low-fat margarine	2	30	233
		Total Carbohydrates	**2**	**30**	
	Meat (protein)	1oz low-fat cheese for sandwich			51
		Total Meats			

Healthy Eating

Eating Out

Here are some tips to help you follow your meal plan when eating out:

- Drink water before your meal arrives.
- Remember that sides and extra toppings can add lots of carbs.
- Order stir-fried, boiled, broiled, steamed, stewed, poached, or grilled foods. Avoid fried foods.
- Ask for a menu item to be prepared differently. If the menu item includes fried shrimp, ask for grilled shrimp instead.
- Ask for sauces and dressings on the side, and use only a little.
- Remember that portions may be bigger than you prepare at home. Eat only part of your meal and take the rest home.

Healthy Eating

Alcohol

People with diabetes (as well as people without diabetes) should limit their alcohol intake. Alcohol can cause drop in blood sugar. Remember these tips when drinking alcohol:

- Eat food with your drink.
- Men should have no more than 2 drinks per day and women should have no more than 1 per day.
- Wear medical identification in case your blood sugar drops to an unsafe level. The symptoms for hypoglycemia and drunkenness are similar. Wear a medical identification bracelet to ensure you get proper help.
- Do not drink alcohol if your blood sugar level is out of your target range.
- Check with your doctor or pharmacist to make sure it is safe to drink alcohol with your medications.

How Much Is One Drink?

12 oz Beer | 5 oz Wine | 3 oz Fortified Wine | 1.5 oz Liquor (1 shot)

Healthy Eating

Shopping

Once you have planned your meals, you will need to go shopping. Follow these tips to help save money and stick with your plan:

- Read food labels.
- Use coupons.
- Watch for sales or specials.
- Make a shopping list and stick to it.
- Shop after you eat. Hunger in the grocery store causes impulse buying.
- Buy foods like fruits and vegetables in season.
- Buy items like juice, vegetables, and bread when they are on sale and store them in the freezer.
- Buy whole grain pastas and breads.
- Buy dried beans or fat-free canned beans.
- If you buy canned fruits, make sure they do not have added sugar.
- Buy ground turkey breast instead of ground beef.
- If you buy canned tuna, salmon, or crabmeat, make sure it is packed in water, not brine or oil.
- Instead of a loaded frozen pizza, buy cheese pizza and add fresh vegetables.

Healthy Eating

Goals

Setting goals helps people control their diabetes.
Goals should be S.M.A.R.T.

Specific

Measurable

Action Oriented

Realistic

Timely

Use this form to help you set goals for healthy eating.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

_____

Ways I will overcome or address these barriers are _____

_____

_____

Healthy Eating

Case Study

Your nephew is getting married in 2 weeks and there will be a lavish buffet reception.

How will you be tempted?

_____

_____

_____

_____

What can you do to plan ahead?

_____

_____

_____

_____

What or who can help you stick to your meal plan?

_____

_____

_____

_____

Doctor's Visits

If you are having trouble controlling your diabetes, you may need to see your doctor every 3 months. If your diabetes is under control, you should see your doctor every 3-6 months (2-4 times per year).

You should also see your dentist every 6 months (2 times per year).

Every Visit

Tests your doctor should do every visit:

- A1C (sometimes called HbA1C)
- Weight
- Blood pressure
- Foot check

Every Year

Tests your doctor should do every year:

- Screening for microalbumin (urine test)
- Cholesterol
- Triglycerides
- Dilated eye exam

Test	Target level
Blood pressure	Less than 130/80 mmHg
LDL (bad) Cholesterol	Less than 100 mg/dl without Cardiovascular disease Less than 70 mg/dl with Cardiovascular disease
HDL (good) Cholesterol	Greater than 40 mg/dl for men Greater than 50 mg/dl for women
Triglycerides	Less than 150 mg/dl

Doctor's Visits

Things to Discuss with Your Doctor

- Meal plan, especially any changes or problems
- Exercise plan, especially any changes or problems
- Blood sugar records
- Your target blood sugar range
- When to test for blood sugar
- How you are coping with diabetes
- Any questions you have about diabetes or managing diabetes
- Foot care
- Sick day management

Things to Take to Every Visit

- All medications that you are taking
- Blood sugar testing meter
- Blood sugar monitoring record
- List of questions you want to ask
- Paper and pen to take notes

Health Record

Use this chart to keep track of your test scores.

	Test	Goal	Date/Result	Date/Result	Date/Result
Every Visit	Weight				
	Blood pressure	<130/80 mmHg			
Every 3 months	A1C	<7%			
Every year	Total cholesterol	<200 mg/dl			
	LDL cholesterol	<100 mg/dl			
	HDL cholesterol	>40 mg/dl (men) >50 mg/dl (women)			
	Triglycerides	<150 mg/dl			
	Microalbumin				

Use this chart to keep track of exams and shots.

	Test	Date/Comments	Date/Comments	Date/Comments
Every 6 months	Dental exam			
Every year	Dilated eye exam			
	Flu shot			

Pregnancy

Women with Diabetes

Pregnancy is usually an exciting time, but also a time when you are more anxious about your health. Even though you have diabetes, you can still have a successful pregnancy. However, there are things you should do before you get pregnant to ensure a healthy outcome for you and your baby:

- Plan pregnancy. Always use birth control and use it correctly.
- Achieve and maintain good blood sugar levels.
- Stop diabetes pills and begin insulin. Always talk with your doctor before changing your medication.
- Monitor your blood sugar regularly and take steps to keep it in target range.
- Have a complete diabetes check-up.
- Have a dilated eye exam.
- Stop smoking.
- Avoid alcohol.

Time of Test	Target blood sugar level during pregnancy
Fasting and before meals	80-110 mg/dl
1 hour after meals	Less than 155 mg/dl
2 hours after meals	Less than 135 mg/dl

Setting Goals

After each section, you wrote a S.M.A.R.T. goal (pages 22, 26, 34, 47, and 76). Choose 1 or 2 goals that you want to focus on and circle that goal here.

The instructor will give you a goal sheet. Write the S.M.A.R.T. goals you chose on that sheet, then give the sheet back to the instructor. The Diabetes Association of Atlanta will follow up on your progress 3, 6, and 12 months after your class.

Circle 2 goals that you want to focus on:

- Monitoring blood sugar (page 22)
- Being active (page 26)
- Medicine (page 34)
- Preventing Complications (page 47)
- Healthy Eating (page 76)

Resources

Free or Low Cost Clinics

Georgia Free Clinic Network	To find a free or low cost clinic in your county or area 678-904-3117	www.gfen.org
The National Association of Free Clinics		www.freeclinics.us
Georgia Department of Public Health	To find your local county Department of Public Health 404-657-2700	http://health.state.ga.us
Grady Health System Diabetes Clinic	(404) 616-3730	
Georgia Association of Primary Health Care	To find a community health center in your area 404-616-3730	www.gaphc.org

Emergency Assistance (job loss, food, housing)

United Way	For information on best source of assistance 211	www.UnitedWayAtlanta.org
Salvation Army	404-873-3101	www.SalvationArmy.org
American Red Cross	404-876-3302	www.GeorgiaRedCross.com
Task Force for the Homeless	404-589-9495	www.HomelessTaskForce.org

Resources

Help for Prescription Costs

GeorgiaCares	For Medicare recipients 800-809-7276	www.gacares.org
Needy Meds	978-865-4115	www.needymeds.org
Rx Specialty Services	800-769-3880	www.rxoutreach.org
Partnership for Prescription Assistance	888-477-2669	www.pparx.org
Prescription Assistance 360	888-331-1002	www.PrescriptionAssistance360.org
Kroger	Provides many diabetes drugs for $4.00	www.kroger.com/pharmacy
Wal-Mart	Provides many diabetes drugs for $4.00	www.walmart.com/cp/pharmacy
Publix	Free 30-day supply of Metformin	www.publix.com/pharmacy

Resources

Prescription Assistance

If you use insulin you may contact the company that makes your insulin for information on their assistance programs.

Eli Lilly	800-545-6962	
Novo Nordisk	800-727-6500	
Sanofi Aventis	800-221-4025	www.sanofi.us
Merck	800-727-5400	
Amylin		www.AmylinReimbursement.com
Bristol Myers Squibb	800-736-0003	www.bmspaf.org
Bayer	800-998-9180	
GlaxoSmithKline	866-475-3678	www.gsk-access.com
Pfizer	866-706-2400	www.PfizerHelpfulAnswers.com

Medical Equipment

Friends of Disabled Adults	770-491-9014	www.fodac.com

Medicaid/Medicare

Department of Family and Children Services	800-869-1150	www.dfcs.dhr.georgia.gov

Resources

Nutrition

Diabetes Association of Atlanta	404-527-7150	www.DiabetesAtlanta.org
American Diabetes Association	800-232-6733	www.diabetes.org
American Dietetic Association		www.EatRight.org
Nutrition Hotline	800-366-1655	
Nutrition in the Fast Lane	For nutrition information on fast food restaurants 800-545-5979	www.FastFoodsFacts.com
Calorie King		www.CalorieKing.com
Weight Watchers	Help with weight management 800-651-6000	www.WeightWatchers.com

Impotence/Sexual Concerns

Impotence Hotline	800-433-4215	

Medical Identification

Medic Alert	800-432-5378	www.MedicAlert.org

Resources

Eyes, Visual Impairments

American Foundation for the Blind	404-525-2303	www.afb.org
Blind and Low Vision Services of North Georgia	770-432-7280	www.blvsgeoriga.org
Center for Visually Impaired	404-875-9011	www.cviga.org
Diabetes Eye Care Program	800-273-EYES	
Foundation of the American Academy of Ophthalmology	800-391-EYES	www.faao.org
Prevent Blindness Georgia	404-266-2020	Georgia.PreventBlindness.org
Knights Templar Eye Foundation	Pays for corrective eye surgery 773-205-3838	www.KnightsTemplar.org
Library Services for the Blind	404-756-4619	www.loc.gov
Lion's Lighthouse	404-325-3630	www.lionslighthouse.org

Resources

Education and Research

Joslin Diabetes Center	800-567-5461	www.joslin.org
Juvenile Diabetes Foundation International	800-533-2573	www.jdf.org
Centers for Disease Control & Prevention	Diabetes public health resources 877-232-3422	www.cdc.gov/diabetes
National Institute of Diabetes & Digestive & Kidney Disease	301-496-3583	www.niddk.nih.gov
National Institutes of Health	301-496-4000	www.nih.gov

Dictionary

Word and Definition	Page or Pages in Workbook
AACE: American Association of Clinical Endocrinologists, a group of doctors who specialize in diabetes	15
Acute: short term	37, 38
ADA: American Diabetes Association, a group that helps people with diabetes	15
Alcohol	37, 39,74, 81
Blood pressure: the force of blood pushing against blood vessels	7, 10, 23, 24, 39, 40, 42, 53, 65, 69, 70, 78
Blood sugar: blood glucose	4, 5, 8, 10, 12, 14, 15, 16, 17, 19, 20, 21, 22, 23, 24, 25, 29, 30, 33, 35, 38, 39, 41, 42, 43, 45, 49, 50, 51, 65, 74
Body Mass Index: (also called BMI) a measure of body fat based on height and weight	71
Carb choice: 15 grams of carbohydrates	51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 63, 72
Carbohydrate: main source of energy. Your body turns carbohydrates into glucose (sugar), which is then used for energy.	8, 17, 28, 29, 35, 37, 49, 51, 52, 53, 55, 56, 57, 58, 59, 60, 61, 62, 63, 72
Cataracts: cloudy eyesight	41
Chronic: lasts a long time	39, 40, 41, 42, 43, 44, 45, 46, 47, 53
Depression	11

Dictionary

Word and Definition	Page or Pages in Workbook
Diabetes: when blood glucose (sugar) levels are very high over a long period of time	
Eating out	73
Exercise: anything that gets you moving and gets your heart beating faster	9, 13, 19, 21, 23, 24, 25, 38, 79
Fats: help cells work properly and provides energy	20, 28, 40, 49, 53, 54, 65, 66, 67, 68, 70
Fiber: (also called roughage) helps lower cholesterol and blood pressure and is good for digestion	49, 53, 54, 70
Gastroparesis: when your stomach cannot empty	43
Gestational diabetes: diabetes that appears when a woman gets pregnant	81
Glaucoma: an eye disease that can lead to blindness	41
Glucagon: raises blood sugar when it gets too low	38
Glucose: a kind of sugar that your body uses for energy.	3, 4, 5, 8, 28, 38
HDL cholesterol: the good cholesterol. HDL cleans arteries so blood can flow freely.	7, 78, 80
Hemoglobin A1C: a protein in the blood. When blood sugar is high, it sticks to the hemoglobin. A hemoglobin A1C test gives an average blood sugar for the past 3 months	5, 15, 19, 78, 80

Dictionary

Word and Definition	Page or Pages in Workbook
Hyperglycemia: high blood sugar	4
Hypoglycemia: low blood sugar (less than 70 mg/dl)	37, 38, 74
Impotence: hard to get or hold an erection	39, 43
Insulin: helps glucose (sugar) to get inside the cells so the body can use it for energy	3, 4, 6, 20, 28, 29, 30, 31, 32, 33, 36, 37, 65, 81, 85
Intestine: tube in the belly where most nutrients are absorbed	28
Ketoacidosis: a sickness that happens when there are too many ketones in your blood or urine. If not treated quickly, it can lead to coma or death.	20, 21
Ketones: an acid that your body makes when it has to burn fat for energy instead of glucose	19, 20, 21, 24, 25
Lancets: the small needles that are used in monitoring	15, 16
LDL cholesterol: the bad cholesterol. LDL cholesterol gets stuck in arteries and can cause blood clots. Blood clots can cause heart attacks.	78, 80
Liver: filters blood	28, 29
Monitoring: testing your blood sugar so that you know if it is too high or too low	14, 15, 16, 19, 79
Monounsaturated fats: a kind of fat that helps lower overall cholesterol and are good for your heart	53, 66, 68
Nephropathy: kidney damage	39, 42

Dictionary

Word and Definition	Page or Pages in Workbook
Neuropathy: nerve damage	39, 43
Nonstarchy vegetables: vegetables that do not have many carbohydrates.	62, 63
Pancreas: makes insulin	3, 4, 28, 29, 30
Plate method: an easy way to plan a balanced meal. Use 1/2 of the plate for vegetables. Use 1/4 of the plate for starches. Use 1/4 of the plate for lean meat or fish.	50
Polyunsaturated fats: lower both the good and bad cholesterol	66, 67, 68
Pre-diabetes: blood glucose (sugar) is higher than normal, but not high enough to be diabetes	5
Proteins: build and repair tissue in the body	8, 63, 65, 68
Retinopathy: eye damage	39, 41
S.M.A.R.T. goals: goals that are specific, measurable, action oriented, realistic, and timely	13, 22, 26, 34, 47, 76
Saturated fats: raise overall cholesterol and are bad for your heart	54, 66, 67
Skin care:	46
Skin infections:	46
Sodium: salt	49, 53, 54, 69
Stress: a good or bad event that causes strain	10
Syringe: needle	31
Triglycerides: a kind of fat that your body stores for emergency energy	78, 80

Acknowledgements

This workbook used information or adapted materials from the following sources.

American Association of Clinical Endocrinologists

American Association of Diabetes Educators

American Diabetes Association

American Heart Association

CCS Medical Meal Plan Guide

Centers for Disease Control and Prevention

Changing Life with Diabetes, Novo Nordisk

Learning About Diabetes, Inc.

Living Well with Diabetes Self-Care Workbook, Krames Patient Education

National Institute of Diabetes and Digestive and Kidney Diseases

National Institute of Mental Health

My Carbohydrate Guide, Lilly Diabetes

Diabetes Self-Care Teaching Tools, Prescription Solutions

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Image Sources:

American Diabetes Association

Diabetes Healthy Solutions

Learning About Diabetes, Inc.

National Institute of Diabetes and Digestive and Kidney Diseases

Mosby's Dictionary of Complementary and Alternative Medicine

Roche

Simco Muskoka District Health Unit

Name _____

Class date _____

After each section, you wrote a S.M.A.R.T. goal (pages 22, 26, 34, 47, and 76). Choose 1 or 2 goals that you want to focus on and write those goals here. Then give this sheet back to your instructor. The Diabetes Association of Atlanta will follow up on your progress in 3, 6, and 12 months.

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

Ways I will overcome or address these barriers are _____

_____

My health goal is to _____

In order to meet this goal I will _____

_____

_____

The people who will help me meet my goal are _____

_____

The barriers I might face are _____

_____

Ways I will overcome or address these barriers are _____

_____