

GED 2002 Teachers' Handbook of Lesson Plans

Content Area Science	Lesson Title <i>Diabetes – It's a Killer!</i>	Correlation to Framework 03.02/03.05/03.06	Lesson Number 36
<p>Objectives/Learner Outcomes</p> <p>At the end of this lesson, the learner will be able to:</p> <ul style="list-style-type: none"> • Use basic vocabulary associated with diabetes • Identify symptoms of diabetes and how to reduce the risk of diabetes • Understand the impact diabetes can have on an individual's health • Develop a sample diet and list of activities that they can include in their lives to decrease risk of diabetes • Assess personal risk for diabetes 		<p>Materials/Resources/Internet Sites/Handouts/Worksheets</p> <ul style="list-style-type: none"> • Handout – American Diabetes Association (ADA) Risk Test online version available at: http://www.diabetes.org/risk-test.jsp. • Handout – K-W-L • Handout – National Diabetes Fact Sheet • Handout – Food and Exercise Form • Handout – ADA Obesity Tips • Advertisements from local grocery stores or newspapers • Internet Resources <ul style="list-style-type: none"> ○ All About Diabetes by the ADA at http://www.diabetes.org/about-diabetes.jsp ○ Diabetes Dictionary by the ADA at: http://www.diabetes.org/diabetesdictionary.jsp ○ Making Healthy Food Choices by the ADA at: http://www.diabetes.org/nutrition-and-recipes/nutrition/healthyfoodchoices.jsp ○ National Diabetes Fact Sheet by the ADA at: http://www.diabetes.org/diabetes-statistics/national-diabetes-fact-sheet.jsp 	
<p>Pre-Requisite Knowledge</p> <p>The learner should be able to:</p> <ul style="list-style-type: none"> • Identify elements of a healthy diet • Identify a variety of methods for incorporating exercise into daily life • Develop charts and graphs • Complete activities on the Internet and to find resources as needed • Compare and contrast information 		<p>Key Words</p> <ul style="list-style-type: none"> • Diabetes • Pre-diabetes • Prevalence • Complications • Type I, Type II, Gestational, Other Diabetes • Prevention • Treatment • Insulin • Glucose • Risk Factors 	

Anticipatory Set/Introduction

Say: Ask most people if they are happy with the way they look, and they will say something like the following:

- No, I am too skinny. I can't seem to gain any weight and I have no muscles.
- No, I am too fat. I have tried every diet under the sun but nothing seems to work.
- No, my hair is too curly or too straight. My lips are too small or too big. I don't like my nose. I would like to have green eyes instead of brown.

Ask most people how they feel about themselves, and they will tell you all the things that are wrong – but usually those things are just about their outward appearance. Rarely will someone say to you that they are worried about themselves because they are overweight and afraid they have or will have diabetes in the future. People tend to focus on appearance and not on what's healthy and what's not. In this lesson, we are going to take a look at our health and our personal risk of diabetes. Diabetes was the 6th leading cause of death in the U.S. in 2000, and the number keeps climbing. There are warning signs that can help you avoid being the victim of diabetes and all the complications that accompany it.

Preview Questions for Lesson

1. Do you know anyone with diabetes?
2. What do you know about diabetes?
3. What are the warning signs for diabetes?
4. Could you be at risk for diabetes and not know it?
5. What can you do to prevent diabetes?

Instructional Outline

Provide students with copies of the Handout – **American Diabetes Association (ADA) Risk Test**. Have students complete the test and calculate their scores. Survey the class to see how many students had risk factors in each of the following categories: weight, age, family member with diabetes, limited exercise. Have students construct a graph showing the results for the entire class.

Have students complete the *K and W* portion of the Handout – **K-W-L** about diabetes. Provide students with the Handout – **National Diabetes Fact Sheet**. Preview the text with the students, indicating key vocabulary words and statistics within the article. Have students read the article and include ten facts (in their own words) that they learned about diabetes on the **K-W-L** form. Have students share their facts within small groups or to entire class.

Discuss with students the importance of a healthy diet and exercise in preventing diabetes. Provide students with the Handout – **ADA Obesity Tips** (pdf files provided by the ADA) and the addresses for the Internet resources. Have the students work in teams to create a shopping list, daily menus, and an exercise plan for a one-week period. Before beginning work on their plans, have students develop a rubric that will be used to assess how well each team's plan meets ADA guidelines. Provide students with advertisements from local grocery stores to develop their menus. Have students share their work and discuss how they determined foods to serve and the type of exercise to include in their plans. Have the class use the rubric to assess strengths and weaknesses of each plan.

After students have shared their plans, ask them what types of food that they normally consume that were not included in a healthy eating plan. You may wish to discuss the importance of limiting "junk food" items and incorporating more fruits and vegetables.

Process/Activities

If you are unfamiliar with the warning signs, symptoms, and consequences of diabetes, you may wish to review the information provided on the Internet resources prior to conducting this lesson. The Internet resources will provide you with a basic overview of diabetes plus information on its prevention and control. Prior to conducting the lesson, take a few minutes to read through the entire lesson plan including all handouts and supplemental materials.

- Have students complete the **Diabetes Risk Test** and analyze the results. Survey students and develop a graph to display common risk factors among students.
- Have students complete the K-W portion of a **K-W-L** form before distributing the text.
- Prior to reading the *National Diabetes Fact Sheet*, preview the text with students. Point out the importance of locating key words before reading (text in bold, underlined, and italicized). Have students look at the sub-headings included in the text and how the material is organized.
- Review key points students identified on their **K-W-L** form focusing on what they learned from the text.
- Review key terms and make sure that students have an understanding of the vocabulary. Have students add key terms in their personal dictionaries as needed.
- Make sure students are familiar with the Internet and how to type in the URL or address for each resource site.
- Have students develop a 4-point rubric to assess their diet and exercise plans.
- Have students complete their shopping list, menus and exercise plans and share with the class.

Product/Evaluation/Summary

When students have completed this lesson, they will provide the teacher with a:

- copy of their **K-W-L** form showing what they have learned about diabetes;
- copy of their team's shopping list, menus, and exercise plan; and
- paragraph that includes three things they intend to do to reduce their risk of diabetes.

Teaching to Different Types of Learners

	Visual	Auditory	Kinesthetic/Tactile
Learning Activity	Write the instructions for the activities on the board or provide them as a handout for students. Use transparencies for the K-W-L and diet/exercise forms so that students can follow directions for the activities.	Review the instructions orally with students so that they can both see and hear all directions. Have students work in teams to complete the shopping list, menus, and exercise forms.	Have students work in teams to develop their shopping list, menus, and exercise. Have students use the Internet to access different types of exercise that can be used in their plans.

<p>Special Differentiation Strategies</p>	<p>Use transparencies or a whiteboard to write directions and make lists of students' K-W-L responses.</p>	<p>Provide the text on audio-tape so that students can review the information as needed.</p> <p>Provide students with a list of questions to answer as they listen to the tape of the text.</p>	<p>Have students demonstrate various exercises included in their plan.</p> <p>Encourage students to use their own creativity in designing the timelines.</p>
<p>Evaluation</p>	<p>Have students make overheads of their own diet/exercise plans and share them with the class.</p>	<p>Have students read their plans to the class.</p>	<p>Have students develop their menus/exercise plans using photos or symbols. Have students demonstrate their exercise to the class or have them show the class how to create a specific dish they included in their menus.</p>
<p>The Family and Adult Literacy Connection</p> <p>Unfortunately, many parents deal with the very real concern of a child with diabetes. Have students visit the <i>Kids and Diabetes</i> website at http://web.diabetes.org/wizdom/download/. The site is loaded with information that parents can use with their children. Have parents and their children visit <i>Brain Sprain</i>, an interactive, game section of the website designed for children. <i>Brain Sprain</i> is located at: http://www.diabetes.org/wizdom/brainsprain/index.shtml.</p> <p>Have students with children:</p> <ul style="list-style-type: none"> • include their children in developing a special meal that meets ADA Guidelines (and their children will like); • shop with their children to purchase the items; • prepare the meal together; and • find an activity that they can do with their children in order to increase their level of exercise. <p>Report to the class on how the meal went and if they think they can continue this type of interaction in the future.</p>		<p>ESE/ESOL Accommodations</p> <p>Pair stronger readers with those who may have more limited reading skills. Rather than having students identify ten things that they learned about diabetes, limit the number to five. Provide more time for a student with disabilities to complete the task. Work one-on-one with the student who is having difficulty with the tasks. Break the text into smaller portions and provide the student with index cards to take notes.</p>	

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American Diabetes Association Diabetes Risk Test - Text Version

Could you have diabetes and not know it?

There are 18.2 million Americans with diabetes - and nearly one-third of them (or 5.2 million people) don't know it! Take this test to see if you are at risk for having diabetes. Diabetes is more common in African Americans, Latinos, Native Americans, Asian Americans and Pacific Islanders. If you are a member of one of these ethnic groups, you need to pay special attention to this test.

To find out if you are at risk, write in the points next to each statement that is true for you. If a statement is *not* true, write a zero. Then add all the points to get your total score.

	<u>Yes</u>	<u>No</u>
1. My weight is equal to or above that listed in the chart below.	5pts	0pts
2. I am under 65 years of age <u>and</u> I get little or no exercise during a usual day.	5pts	0pts
3. I am between 45 and 64 years of age.	5pts	0pts
4. I am 65 years old or older.	9pts	0pts
5. I am a woman who has had a baby weighing more than nine pounds at birth.	1pts	0pts
6. I have a sister or brother with diabetes.	1pts	0pts
7. I have a parent with diabetes.	1pts	0pts
Total Points:	_____	

Scoring 3-9 points

You are probably at low risk for having diabetes now. But don't just forget about it – especially if you are Hispanic/Latino, African American, American Indian, Asian American, or Pacific Islander. You may be at higher risk in the future.

Scoring 10 or more points

You are at greater risk for having diabetes. Only your health care provider can determine if you have diabetes. At your next office visit, find out for sure.

The information contained in this American Diabetes Association (ADA) Test, retrieved from the ADA website, is not a substitute for medical advice or treatment, and the ADA recommends consultation with your doctor or health care professional.

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At-Risk Weight Chart Body Mass Index

Height in feet and inches without shoes	Weight in pounds without clothing
4'10"	129
4'11"	133
5'0"	138
5'1"	143
5'2"	147
5'3"	152
5'4"	157
5'5"	162
5'6"	167
5'7"	172
5'8"	177
5'9"	182
5'10"	188
5'11"	193
6'0"	199
6'1"	204
6'2"	210
6'3"	216
6'4"	221

If you weigh the same or more than the amount listed for your height, you may be at risk for diabetes.

Diabetes Facts You Should Know

Diabetes is a serious disease that can lead to blindness, heart disease, strokes, kidney failure, and amputations. It kills almost 210,000 people each year.

Some people with diabetes exhibit symptoms; some do not. If you have any of the following symptoms, contact your doctor:

- Extreme thirst
- Frequent urination
- Unexplained weight loss

For more information on diabetes, visit the *American Diabetes Association (ADA)* website at: <http://www.diabetes.org/about-diabetes.jsp>.

The information contained in the *American Diabetes Association (ADA)* website is not a substitute for medical advice or treatment, and the ADA recommends consultation with your doctor or health care professional.

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Diabetes K-W-L Form

What I KNOW About Diabetes!	What I WANT to Know About Diabetes!	What I LEARNED About Diabetes!

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American Diabetes Association (ADA) National Diabetes Fact Sheet

General information and national estimates on diabetes in the United States, 2002

Prevalence of total diabetes in the United States, all ages, 2002

Total: 18.2 million people - 6.3% of the population - have diabetes.

Diagnosed: 13 million people

Undiagnosed: 5.2 million people

Prevalence of total diabetes among people under 20 years of age, United States, 2002

- About 206,000 people under 20 years of age have diabetes. This represents 0.25% of all people in this age group.
- Approximately one in every 400 to 500 children and adolescents has type 1 diabetes.
- Clinic-based reports and regional studies indicate that type 2 diabetes is becoming more common among Native American/American Indian, African American, and Hispanic and Latino children and adolescents.

Prevalence of total diabetes among people aged 20 years or older, United States, 2002

- **Age 20 years or older:** 18 million. 8.7% of all people in this age group have diabetes.
- **Age 60 years or older:** 8.6 million. 18.3% of all people in this age group have diabetes.
- **Men:** 8.7 million. 8.7% of all men aged 20 years or older have diabetes.
- **Women:** 9.3 million. 8.7% of all women aged 20 years or older have diabetes.

Prevalence of total diabetes by race/ethnicity among people aged 20 years or older, United States, 2002

- **Non-Hispanic whites:** 12.5 million. 8.4% of all non-Hispanic whites aged 20 years or older have diabetes.
- **Non-Hispanic blacks:** 2.7 million. 11.4% of all non-Hispanic blacks aged 20 years or older have diabetes. On average, non-Hispanic blacks are 1.6 times more likely to have diabetes than non-Hispanic whites of similar age.
- **Hispanic/Latino Americans:** 2 million. 8.2% of all Hispanic/Latino Americans aged 20 years or older have diabetes. On average, Hispanic/Latino Americans are 1.5 times more likely to have diabetes than non-Hispanic whites of similar age. Mexican Americans, the largest Hispanic/Latino subgroup, are more than twice as likely to have diabetes as non-Hispanic whites of similar age. Similarly, residents of Puerto Rico are 1.8 times more likely to have diagnosed diabetes than U.S. non-Hispanic whites. Sufficient data are not available to derive more specific current estimates for other Hispanic/Latino groups.
- **American Indians and Alaska Natives who receive care from the Indian Health Service (IHS):** 107,775. 14.5% of American Indians and Alaska Natives aged 20 years or older receiving care from IHS have diabetes. At the regional level, diabetes is least common among Alaska

Natives (6.8%) and most common among American Indians in the southeastern United States (27%). On average, American Indians and Alaska Natives are 2.2 times more likely to have diabetes than non-Hispanic whites of similar age.

- **Asian Americans and Native Hawaiian or other Pacific Islanders:** In 2002, Native Hawaiians and Japanese and Filipino residents of Hawaii were approximately two times more likely to have diagnosed diabetes than white residents of Hawaii of similar age. Prevalence data for diabetes among other Pacific Islanders or Asian Americans are limited, but some groups within these populations are at increased risk for diabetes.

Incidence of diabetes, United States, 2002

- **New cases diagnosed per year:** 1.3 million people aged 20 years or older.

Deaths among people with diabetes, United States, 2000

- Diabetes was the sixth leading cause of death listed on U.S. death certificates in 2000. This is based on the 69,301 death certificates in which diabetes was listed as the underlying cause of death. Altogether, diabetes contributed to 213,062 deaths.
- Diabetes is likely to be under reported as a cause of death because many decedents with diabetes do not have the disease entered on their death certificate. Studies have found that only about 35% to 40% have it listed anywhere on the certificate and only about 10% to 15% have it listed as the underlying cause of death.
- Overall, the risk for death among people with diabetes is about 2 times that of people without diabetes.

Complications of diabetes in the United States

Heart disease and stroke

- Heart disease is the leading cause of diabetes-related deaths. Adults with diabetes have heart disease death rates about 2 to 4 times higher than adults without diabetes.
- The risk for stroke is 2 to 4 times higher among people with diabetes.
- About 65% of deaths among people with diabetes are due to heart disease and stroke.

High blood pressure

- About 73% of adults with diabetes have blood pressure greater than or equal to 130/80 millimeters of mercury (mm Hg) or use prescription medications for hypertension.

Blindness

- Diabetes is the leading cause of new cases of blindness among adults 20-74 years old.
- Diabetic retinopathy causes from 12,000 to 24,000 new cases of blindness each year.

Kidney disease

- Diabetes is the leading cause of treated end-stage renal disease, accounting for 43% of new cases.
- In 2000, 41,046 people with diabetes began treatment for end-stage renal disease.
- In 2000, a total of 129,183 people with diabetes underwent dialysis or kidney transplantation.

Nervous system disease

- About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage. The results of such damage include impaired sensation or pain in the feet or hands, slowed digestion of food in the stomach, carpal tunnel syndrome, and other nerve problems.
- Severe forms of diabetic nerve disease are a major contributing cause of lower-extremity amputations.

Amputations

- More than 60% of nontraumatic lower-limb amputations in the United States occur among people with diabetes.
- From 2000 to 2001, about 82,000 nontraumatic lower-limb amputations were performed each year among people with diabetes.

Dental disease

- Periodontal or gum diseases are more common among people with diabetes than among people without diabetes. Among young adults, those with diabetes are often at twice the risk of those without diabetes.
- Almost one-third of people with diabetes have severe periodontal diseases with loss of attachment of the gums to the teeth measuring 5 millimeters or more.

Complications of pregnancy

- Poorly controlled diabetes before conception and during the first trimester of pregnancy can cause major birth defects in 5% to 10% of pregnancies and spontaneous abortions in 15% to 20% of pregnancies.
- Poorly controlled diabetes during the second and third trimesters of pregnancy can result in excessively large babies, posing a risk to the mother and the child.

Other complications

- Uncontrolled diabetes often leads to biochemical imbalances that can cause acute life-threatening events, such as diabetic ketoacidosis and hyperosmolar (nonketotic) coma.
- People with diabetes are more susceptible to many other illnesses and, once they acquire these illnesses, often have worse prognoses than people without diabetes. For example, they are more likely to die with pneumonia or influenza than people who do not have diabetes.

Cost of diabetes in the United States, 2002

- **Total (direct and indirect)** : \$132 billion
- **Direct medical costs** : \$92 billion
- **Indirect costs** : \$40 billion (disability, work loss, premature mortality)

General Information

What is diabetes?

Diabetes is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin production, insulin action, or both. Diabetes can be associated with serious complications and premature death, but people with diabetes can take steps to control the disease and lower the risk of complications.

Types of diabetes

Type 1 diabetes was previously called insulin-dependent diabetes mellitus (IDDM) or juvenile-onset diabetes. Type 1 diabetes develops when the body's immune system destroys pancreatic beta cells, the only cells in the body that make the hormone insulin that regulates blood glucose. This form of diabetes usually strikes children and young adults, although disease onset can occur at any age. Type 1 diabetes may account for 5% to 10% of all diagnosed cases of diabetes. Risk factors for type 1 diabetes include autoimmune, genetic, and environmental factors.

Type 2 diabetes was previously called non-insulin-dependent diabetes mellitus (NIDDM) or adult-onset diabetes. Type 2 diabetes may account for about 90% to 95% of all diagnosed cases of diabetes. It usually begins as insulin resistance, a disorder in which the cells do not use insulin properly. As the need for insulin rises, the pancreas gradually loses its ability to produce insulin. Type 2 diabetes is associated with older age, obesity, family history of diabetes, prior history of gestational diabetes, impaired glucose tolerance, physical inactivity, and race/ethnicity. African Americans, Hispanic/Latino Americans, Native Americans, and some Asian Americans, Native Hawaiian, or other Pacific Islanders are at particularly high risk for type 2 diabetes. Type 2 diabetes is increasingly being diagnosed in children and adolescents.

Gestational diabetes is a form of glucose intolerance that is diagnosed in some women during pregnancy. Gestational diabetes occurs more frequently among African Americans, Hispanic/Latino Americans, and Native Americans. It is also more common among obese women and women with a family history of diabetes. During pregnancy, gestational diabetes requires treatment to normalize maternal blood glucose levels to avoid complications in the infant. After pregnancy, 5% to 10% of women with gestational diabetes are found to have type 2 diabetes. Women who have had gestational diabetes have a 20% to 50% chance of developing diabetes in the next 5-10 years.

Other specific types of diabetes result from specific genetic conditions (such as maturity-onset diabetes of youth), surgery, drugs, malnutrition, infections, and other illnesses. Such types of diabetes may account for 1% to 5% of all diagnosed cases of diabetes.

Treatment of diabetes

- In order to survive, people with type 1 diabetes must have insulin delivered by a pump or injections.
- Many people with type 2 diabetes can control their blood glucose by following a careful diet and exercise program, losing excess weight, and taking oral medication.
- Many people with diabetes also need to take medications to control their cholesterol and blood pressure.
- Diabetes self-management education is an integral component of medical care.
- Among adults with diagnosed diabetes, about 12% take both insulin and oral medications, 19% take insulin only, 53% take oral medications only, and 15% do not take either insulin or oral medications.

Pre-diabetes – Impaired glucose tolerance and impaired fasting glucose

- Pre-diabetes is a term used to distinguish people who are at increased risk of developing diabetes. People are considered to have pre-diabetes if they have impaired fasting glucose (IFG) and/or impaired glucose tolerance (IGT).
- IFG is a condition in which the fasting blood sugar level is elevated (between 110 and 125 mg/dL after an overnight fast) but is not high enough to be classified as diabetes.
- IGT is a condition in which the blood sugar level is elevated (between 140 and 199 milligrams per deciliter or mg/dL after a 2-hour oral glucose tolerance test), but not high enough to be classified as diabetes.

- In a cross section of U.S. adults tested in 1988 to 1994, 9.6 million (10.1%) adults aged 40-74 years had IFG, 14.2 million (14.9%) have IGT, and **20.1 million (21.1%) had pre-diabetes (IGT or IFG)**.
- Progression to diabetes among those with pre-diabetes is not inevitable. Studies suggest that weight loss and increased physical activity among people with pre-diabetes prevents or delays diabetes and may return blood glucose levels to normal.
- People with pre-diabetes are already at increased risk for heart disease and stroke.

Prevention or delay of diabetes

Research studies in the United States and abroad have found that lifestyle changes can prevent or delay the onset of type 2 diabetes among high-risk adults. These studies included people with IGT and other high-risk characteristics for developing diabetes. Lifestyle interventions included diet and moderate-intensity physical activity (such as walking for 2 1/2 hours each week). In the Diabetes Prevention Program, a large prevention study of people at high risk for diabetes, the development of diabetes was reduced 58% over three (3) years.

Studies have also shown that medications have been successful in preventing diabetes in some population groups. In the Diabetes Prevention Program, people treated with the drug metformin reduced their risk of developing diabetes by 31% over three (3) years. Treatment with metformin was most effective among younger, heavier people (those 25-40 years of age who were 50 to 80 pounds overweight) and less effective among older people and people who were not as overweight.

Similarly, in the STOP-NIDDM Trial, treatment of people with IGT with acarbose reduced the risk of developing diabetes by 25% over three (3) years. Other medication studies are ongoing. In addition to preventing progression from IGT to diabetes, both lifestyle and medication have also been shown to increase the probability of reverting from IGT to normal glucose tolerance.

There are no known methods to prevent type 1 diabetes. Several clinical trials are currently in progress, and being planned.

Prevention of diabetes complications

Glucose control

- Research studies in the United States and abroad have found that improved glycemic control benefits people with either type 1 or type 2 diabetes. In general, for every 1 point reduction in A1C, the risk of developing microvascular diabetic complications (eye, kidney and nerve disease) is reduced by up to 40%.

Blood pressure control

- Blood pressure control can reduce cardiovascular disease (heart disease and stroke) by approximately 33% to 50%, and can reduce microvascular disease (eye, kidney, and nerve disease) by approximately 33%.
- In general, for every 10 mm Hg reduction in systolic blood pressure, the risk for any complication related to diabetes is reduced by 12%.

Control of blood lipids

- Improved control of cholesterol and lipids (for example, HDL, LDL, and triglycerides) can reduce cardiovascular complications by 20% to 50%.

Developed by Susan Pittman
04/25/04

Preventive care practices for eyes, kidneys, and feet

- Detection and treatment of diabetic eye disease with laser therapy can reduce the development of severe vision loss by an estimated 50% to 60%.
- Comprehensive foot care programs can reduce amputation rates by 45% to 85%.
- Detection and treatment of early diabetic kidney disease can reduce the development of kidney failure by 30% to 70%.

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Shopping List for a Healthy Diet

Fruits	Vegetables	Bread, Pasta, Rice	Milk, Cheese, Eggs
Meat, Fish, and Poultry	Oil, Condiments	Sweets, Desserts	Other

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Weekly Menu

	Breakfast	Lunch	Dinner
Day 1			
Day 2			
Day 3			
Day 4			
Day 5			
Day 6			
Day 7			

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Exercise Plan

	Exercise Plan for the Day	What I Did Today
Day 1		
Day 2		
Day 3		
Day 4		
Day 5		
Day 6		
Day 7		

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DIABETES AND OBESITY TIP SHEET #1



Getting Started

What is the link between diabetes and obesity?

Being overweight or obese is a leading risk factor for type 2 diabetes. The body gets its energy from a type of sugar called glucose. Insulin, which is produced in the pancreas, is required to help your body use glucose. Type 2 diabetes develops when your body can no longer use insulin effectively, or when the pancreas cannot make enough insulin to keep blood glucose levels normal.

A healthy weight is determined by body mass index (BMI), which you can calculate by using the chart below. Overweight is defined as a BMI greater than/equal to 25; obesity is defined as a BMI greater than/equal to 30.

Height in Feet and Inches	Weight in Pounds															
	120	130	140	150	160	170	180	190	200	210	220	230	240	250		
4'6"	29	31	34	36	39	41	43	46	48	51	53	56	58	60		
4'8"	27	29	31	34	36	38	40	43	45	47	49	52	54	56		
4'10"	25	27	29	31	34	36	38	40	42	44	46	48	50	52		
5'0"	23	25	27	29	31	33	35	37	39	41	43	45	47	49		
5'2"	22	24	26	27	29	31	33	35	37	38	40	42	44	46		
5'4"	21	22	24	26	28	29	31	33	34	36	38	40	41	43		
5'6"	19	21	23	24	26	27	29	31	32	34	36	37	39	40		
5'8"	18	20	21	23	24	26	27	29	30	32	34	35	37	38		
5'10"	17	19	20	22	23	24	26	27	29	30	32	33	35	36		
6'0"	16	18	19	20	22	23	24	26	27	28	30	31	33	34		
6'2"	15	17	18	19	21	22	23	24	26	27	28	30	31	32		
6'4"	15	16	17	18	20	21	22	23	24	26	27	28	29	30		
6'6"	14	15	16	17	19	20	21	22	23	24	25	27	28	29		
6'8"	13	14	15	17	18	19	20	21	22	23	24	25	26	28		

Underweight Healthy Weight Overweight Obese

Note: This chart is for adults (≥ 20 years old)

What Can You Do?

The Diabetes Prevention Program showed that losing weight and increasing activity can reduce the risk of developing type 2 diabetes among people who are at high risk. Participants in the study lowered their risk by losing 10-15 pounds, and participating in 30 minutes of physical activity five days a week, usually walking.

Losing Weight

- Begin a weight-loss program with the help of your health care team.
- Ask for a referral to a dietitian who can help you find a diet you can use every day.
- Don't try to do everything at once. Take one step at a time and make changes you can stick with.

If diet and exercise are not enough to reduce your weight, your health care provider may prescribe medications that can help.

Physical Activity

Exercise and other forms of physical activity can help you lose weight by burning calories and building muscle. Results can take time, but each activity will become easier as you get more fit. Becoming physically active can:

- Help you burn extra calories and naturally increase your glucose uptake by increasing your metabolism and muscle mass.
- Improve the body's response to insulin
- Help reduce or even eliminate your need for diabetes medication by lowering blood glucose levels if you have type 2 diabetes
- Reduce your risk for heart disease and stroke, the leading causes of death for people with diabetes

Here are some ideas to help you get started:

- Walk the dog
- Take the stairs instead of the elevator
- Find a friend you can exercise with

Supported by an unrestricted educational grant from:
Abbott Laboratories
Abbott Park, IL 60064
038-600-7000-5



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DIABETES AND OBESITY TIP SHEET #2



Getting Motivated

Making the Decision to Lose Weight

Becoming motivated to lose weight can be difficult, especially if you have tried to lose weight before and have struggled or regained the weight. Losing weight involves changing your eating habits and your level of physical activity; two things that can be very hard to do! It may help you to think about how ready you are to make these changes.

Maybe you think that a change would help but you're not ready or interested. You feel the change would be too hard to make.

Or, perhaps you are at a stage where you're thinking about making a change, but not right away. At this stage, the costs of making the change still outweigh the benefits.

On the other hand, perhaps you're ready to make the change within the month. Have you made a realistic plan and gathered what you need to carry out your plan? Then you're probably ready to take action and start your new routine! After more than six months of your new routine, you will be used to doing it and it will become a habit.

Finding Inspiration

Looking at the different stages described above, think about what fits your thoughts about beginning a weight loss plan. Do you feel that the costs of making a change outweigh the benefits of weight loss? What if you consider that being overweight can cause serious health problems, including diabetes and heart disease? Studies have shown that losing weight by eating right and exercising can help prevent or delay these health problems. Losing weight can also reduce your risk of heart disease or stroke if you already have diabetes.

Your weight affects your lifestyle as well as your health. Ask yourself how being overweight or obese has affected your life. Does being overweight prevent you from doing things that you want to do or could do if you lost weight? Losing weight will help you look and feel better, and give you more energy to do the things you enjoy.

Taking Action

Once you are ready to take action, you are more likely to succeed if you develop a plan and set realistic goals. Your weight loss goals need to be specific and attainable. This means that they specifically outline what you intend to achieve and are well within your reach to accomplish. For example, a goal of "walk more" is a good idea, but it is not specific. A goal of "run ten miles a day" is specific, but not may not be attainable. A goal of "walk 30 minutes a day, five days a week" is not only specific, it is attainable.

Rewards

Rewarding yourself for sticking to your weight loss program is an effective way to keep yourself motivated. Rewards need to be meaningful and realistic. Focus on giving yourself a reward for each step along the way. For example, reward yourself after sticking to the first week on your diet and exercise regimen by buying a new music CD or going to the movies. Bigger rewards, such as buying tickets to a concert or treating yourself to a vacation or a weekend trip, can be saved for reaching long-term goals.

Supported by an unrestricted
educational grant from:
 **Abbott Laboratories**
Abbott Park, IL 60064
038-600.7000-5

