The Oklahoma Cooperative Extension Service
Bringing the University to You!

The Cooperative Extension Service is the largest, most successful informal educational organization in the world. It is a nationwide system funded and guided by a partnership of federal, state, and local governments that delivers information to help people help themselves through the land-grant university system.

Extension carries out programs in the broad categories of agriculture, natural resources and environment; family and consumer sciences; 4-H and other youth; and community resource development. Extension staff members live and work among the people they serve to help stimulate and educate Americans to plan ahead and cope with their problems.

Some characteristics of the Cooperative Extension system are:

- The federal, state, and local governments cooperatively share in its financial support and program direction.
- It is administered by the land-grant university as designated by the state legislature through an Extension director.
- Extension programs are nonpolitical, objective, and research-based information.
- It provides practical, problem-oriented education for people of all ages. It is designated to take the knowledge of the university to those persons who do not or cannot participate in the formal classroom instruction of the university.
- It utilizes research from university, government, and other sources to help people make their own decisions.
- More than a million volunteers help multiply the impact of the Extension professional staff.
- It dispenses no funds to the public.
- It is not a regulatory agency, but it does inform people of regulations and of their options in meeting them.
- Local programs are developed and carried out in full recognition of national problems and goals.
- The Extension staff educates people through personal contacts, meetings, demonstrations, and the mass media.
- Extension has the built-in flexibility to adjust its programs and subject matter to meet new needs. Activities shift from year to year as citizen groups and Extension workers close to the problems advise changes.

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Diet and Diabetes

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http://osufacts.okstate.edu

What Is Diabetes?

Diabetes is a condition that affects the way your body uses food. Your body breaks down the complex carbohydrates and simple sugars you eat into glucose. The blood carries the glucose to the body cells. Insulin helps the blood glucose enter the body cells so it can be used for energy. When you have diabetes, your body makes little or no insulin, or the insulin does not work properly. Without insulin to help blood glucose enter body cells, glucose builds up in the blood and your body cells do not get the energy they need. Over time, high blood glucose can cause complications. High blood glucose can damage your eyes, kidneys, and nerves. High blood glucose also increases your risk of heart disease and high blood pressure. There are two main types of diabetes, type 1 and type 2.

Type 1 Diabetes

Type 1 diabetes is less common than type 2 diabetes. Only about 5 to 10% of people with diabetes have type 1 diabetes. In type 1 diabetes, the pancreas cannot make insulin. The pancreas contains beta cells that make insulin. Sometimes, the beta cells get destroyed. Many things can destroy the beta cells. Some people have a genetic tendency towards type 1 diabetes, but in most people with type 1 diabetes, the immune system makes a mistake. Cells that should protect the body instead attack and destroy the beta cells. Without the beta cells, the pancreas cannot make insulin and glucose builds up in the blood.

Symptoms of type 1 diabetes develop rapidly. The symptoms of diabetes are caused by the high blood glucose. Warning signs may include:

- Extreme thirst
- Rapid weight loss without trying
- Fruity or sweet-smelling breath
- Feeling tired
- Increased hunger
- Slow wound healing
- Blurred vision

The goal of managing type 1 diabetes is to keep blood sugars in a healthy range with:

- Insulin
- A diabetes meal plan
- Physical activity

Type 2 Diabetes

Type 2 diabetes is more common than type 1 diabetes. About 90 to 95% of people with diabetes have this type. In type 2 diabetes, either the pancreas does not make enough insulin, or the body cells do not correctly respond to insulin.

Symptoms of type 2 diabetes develop slowly. Many people with type 2 diabetes do not know they have it until they go to the doctor for a complication. By the time type 2 diabetes is diagnosed, someone could have had high blood glucose levels for 7 to 10 years.

The goal of managing type 2 diabetes is to keep blood sugars in a healthy range with:

- A diabetes meal plan
- Physical activity
- Weight loss (if needed)
- Medication (if needed)

Medication

Insulin: People with type 1 diabetes must take insulin to survive. When the beta cells are destroyed in type 1 diabetes, the pancreas can no longer make insulin. Insulin must be injected. It cannot be taken by mouth, because insulin is a protein and the gastrointestinal enzymes would digest it. When you eat, your body breaks down the carbohydrates and sugars into glucose, and blood glucose levels go up. Insulin works with body cells to bring blood glucose levels back down. People with type 1 diabetes must balance their diet and exercise with their insulin.

Oral Diabetes Medications: For people who have type 2 diabetes, the first approach to diabetes management is eating right, losing weight if needed, and physical activity. But sometimes these efforts are not enough. In that case, your doctor may have you take oral diabetes medication (oral hypoglycemic medications). There are several types of oral diabetes medication. Some help the pancreas make more insulin; others help the body cells use the insulin better. Taking oral diabetes medication does not replace healthful habits. You still need to follow your diabetes meal plan and be physically active. Sometimes oral diabetes medications do not work or they work at first and then stop. When this happens, your doctor may have you take both oral diabetes medications and insulin or may have you take insulin alone.

Weight Loss

For many people with type 2 diabetes, losing weight is a big part of their diabetes management. Many times losing weight helps your body cells use insulin better. The best way to lose weight is to adopt a healthy eating plan and to increase physical activity. With a diabetes meal plan, you are eating fewer calories because you are filling up with good, healthful foods, not foods high in fat or added sugars. A diabetes meal plan also emphasizes portion sizes. Sometimes, just a 10- to 15-pound weight loss can bring your blood glucose into control. Slow weight loss is healthier. No more than a one- to two-pound weight loss per week is recommended. Regular physical activity also helps with weight loss, as well as helps control blood glucose, blood cholesterol and blood pressure.

A Diabetes Meal Plan

A diabetes meal plan is an important part of diabetes treatment. A diabetes meal plan focuses on providing a healthy diet that controls blood glucose and prevents diabetes complications. What is healthy for someone with diabetes is not different from what is healthy for someone who does not have diabetes. A diabetes meal plan is a healthy diet including a variety of foods from all the USDA MyPlate food groups.

There is no one specific diabetes meal plan. Your diabetes meal plan will depend on the foods you like, your weight, physical activity, blood cholesterol, blood pressure, and medication. Your doctor along with a registered dietitian can help make a diabetes meal plan that is right for you. Some factors that may be considered in your diabetes meal plan are:

Calories: For many people with type 2 diabetes losing weight is a big part of their diabetes management. Losing weight can help your body cells use insulin better. For people who are trying to lose weight, their diabetes meal plan will be moderately lower in calories, fat and added sugars to help with weight loss. Losing weight and moderately lower in calories, fat and added sugars to help lower your blood cholesterol and blood pressure if they are high.

Sugar: In the past, people with diabetes were told to avoid sugar. We know now that carbohydrates (from bread, rice, pasta, fruits, and vegetables) and sugars have a similar effect on blood glucose levels. Both kinds increase your blood glucose levels. The total amount of carbohydrate is the issue, not just sugar.

There are some problems with foods high in sugar. Foods high in sugar often do not provide other important nutrients you need every day. Foods high in sugar are often high in fat also. If you are trying to lose weight, you may want to avoid foods high in sugar. The American Diabetes Association considers some artificial sweeteners safe in moderation.

Alcohol: If you take insulin or oral diabetes medication you need to talk to your doctor and/or dietitian to find out how alcohol affects your blood glucose, and if it can fit into your diabetes meal plan. Most people in good diabetes control can safely have a drink with a meal every so often. It is important to test your blood glucose level, before, during, and after drinking. Some alcoholic drinks are very high in sugar and thus, provide carbohydrate. Never drink an alcohol beverage on an empty stomach. Alcohol can cause low blood glucose, especially for people using medication.

Fat: Having diabetes increases your risk of having high blood cholesterol, triglycerides and heart disease. As a result, if you have high blood cholesterol or triglycerides your diabetes meal plan may be modified to be lower in total fat, saturated fat and trans fat. Weight loss also helps lower blood cholesterol and triglycerides for people who are over weight.

Sodium: Having diabetes increases your risk of having high blood pressure. As a result, if you are at risk for high blood pressure, your diabetes meal plan may be modified to be lower in sodium. Weight loss will also help lower blood pressure for people who are over weight.

Protein: Having diabetes increases your risk of kidney disease. If you have kidney disease the protein content of your diabetic meal plan may be modified.

A diabetes meal plan does need one special thing – consistency. A diabetes meal plan includes a schedule of what types of foods and how much to eat at meals and snacks. Two methods often used to provide the consistency of a diabetes meal plan are the diabetic exchanges or carbohydrate counting. For people with type 2 diabetes, a diabetes meal plan providing a consistent amount of carbohydrate spaced throughout the day will help prevent wide changes in blood glucose levels. Eating too much carbohydrate at one time can raise blood glucose too high. Eating too little carbohydrate can lead to low blood sugar for people taking oral diabetes medication or insulin. To be consistent, it is best to:

- Eat about the same number of calories each day.
- Plan your meals and snacks for the same times each day.
- Spread meals and snacks throughout the day.
- Never skip meals.

Physical Activity

Regular physical activity helps the body cells take up glucose and thus lower blood glucose levels. Regular physical activity also helps with weight loss as well as controlling blood cholesterol and blood pressure. You need to let your doctor and dietitian know about the kinds of physical activities you do regularly. Your doctor and dietitian will help you balance your physical activity with your medication and diabetes meal plan. If you are not physically active now, your doctor may recommend that you increase your physical activity level.

Glucose Testing

Your diabetes meal plan, physical activity and medication are all balanced to help keep your blood glucose levels normal.

You need to check your blood glucose levels at home to keep track of how you are doing. Soon you will learn how the foods you eat and your physical activity affect your blood glucose levels. The best defense against diabetes complications is to keep blood glucose in control and take good care of yourself. Keeping your blood glucose in control will help you feel better now and help you stay healthy in the future.

Source

American Diabetes Association. (2017). Standards of Medical Care in Diabetes-2017. *Diabetes Care*. 40, (Supp. 1).

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