Diabetes: Protecting Your Health

Glucose is the body’s major source of energy. It comes from the foods we eat. Glucose is picked up into the bloodstream. From the blood, it moves into the cells for energy. When the glucose cannot get out of the blood and into the cells, it is called diabetes. Diabetes causes 2 problems: cells starve for sugar (energy), and the blood level of sugar goes too high.

**Blood Glucose Levels**

Normal fasting blood sugar level is 70-99 mg/dl. Two hours after eating, blood sugar should be less than 140 mg/dl. Diabetes is diagnosed when:
- The fasting blood glucose level is 126 mg/dl or higher.
- Blood glucose is 200 mg/dl or higher at any time of the day with symptoms of diabetes.
- Blood glucose level is 200 mg/dl or higher at 2 hours after eating. Example: lunch started at 12:30 pm, test at 2:30 pm.

You may have pre-diabetes if your fasting glucose is 100-125 mg/dl, or if blood sugar is 140-199 mg/dl 2 hours after eating.

The body makes a hormone called insulin. It is insulin that helps glucose to leave the blood and enter the cells. Persons with diabetes have a problem with insulin working effectively or not making enough of it in the pancreas. Some people do not make any insulin. Some people require 2 to 3 times more insulin to get the job done. Sometimes the body doesn’t use the insulin properly when it is available.

**Type 1 Diabetes**

Type 1 diabetes is when the body cannot produce insulin. It usually appears suddenly in children or young adults, previously called juvenile diabetes. Yet people all ages can be diagnosed with Type 1 diabetes, if the pancreas stops making insulin.

Without insulin, the blood sugar gets too high. The body tries to flush it out by frequent urination. When the person urinates often, the body gets thirsty. This results in drinking water excessively. Because the sugar cannot get out of the blood and into the cell, the cells are starving. This makes the person feel hungry. So the 3 main signs of diabetes are:
- Increased thirst
- Increased urination
- Increased hunger

Because Type 1 persons with diabetes cannot make insulin, they must take insulin for life, which is usually by injections. They need insulin for the rest of their lives to prevent sudden illness, known as ketoacidosis or burning of their fat for energy.
Type 2 Diabetes

With Type 2 Diabetes, the body still produces some insulin. It may not be enough, or the body may be resistant to it. Therefore, symptoms of Type 2 diabetes are often less severe. Although they may have some increased thirst, urination and hunger, it may go undetected. This may delay diagnosis. Some people do not have any symptoms even with very high sugars.

Type 2 diabetes is much more common than Type 1. About 90 percent of patients with diabetes are Type 2. It usually occurs in people over the age of 30. However, it is becoming more common in overweight children and adolescents.

Diet and medicines usually can control Type 2 diabetes. Patients may or may not need insulin therapy.

Risk Factors for Type 2 Diabetes

- Family history – Children of parents with Type 2 diabetes have an increased risk of developing the disease
- Race – Hispanics, African-Americans, Pacific Islanders, American Indians and Asians have an increased risk
- Being overweight – Increased body weight increases risk
- Body fat distribution – Abdominal fat increases your risk
- Sedentary lifestyle – Many people who develop Type 2 diabetes do not exercise regularly. Note that 45 minutes to one hour per day of physical activity decreases risk.

Other Types of Diabetes

Secondary Diabetes
Secondary diabetes occurs because of other diseases or treatments. It may or may not resolve. Patients have symptoms similar to Type 1 and Type 2 diabetes. Some causes include:
- Disorders of the pancreas: such as pancreatic cancer or pancreatitis
- Cancer treatments: such as steroids and some chemotherapy medicines
- Cushing’s syndrome and others.

Diabetic Management

Diabetes can usually be managed. Patients must follow instructions carefully. Blood sugar control requires many factors:
- For Type 1 – insulin either by injection, pump or inhalation
- For Type 2 – medicines by mouth, or insulin for some
- For all diabetics – testing blood glucose at home every day or as instructed by your health care provider.
- For all diabetics – regular labs for Hemoglobin A1c (HbA1c) usually every 3 months until stable
- For all diabetics – follow meal plan
• Exercise helps move sugar out of the blood and into the cells
• Weight: maintain a healthy weight and lose weight if overweight or obese. Learn about Body Mass Index (BMI).

**Routine Health Maintenance**

When diabetes is not managed, blood sugar levels are too high. High blood sugar damages small blood vessels called capillaries. Good capillaries are critical for healthy eyes, kidneys, nerves, skin, feet, etc. Taking your medicine, following your meal plan, regular exercise, and keeping a good weight will protect your health.

You can also do the following:
• Get an eye exam every year. Tell your eye doctor that you are diabetic. Diabetic retinopathy, or damaged blood vessels in the eye, is the leading cause of blindness in the U.S.
• Get your immunizations:
  – Yearly flu vaccine
  – Pneumococcal vaccine (one-time dose and then revaccinate once older than 65 years, after 5 years have passed since the first vaccine). There are now 2 types of pneumococcal vaccines, and it’s recommended that you have both. Talk with your doctor.
  – A tetanus vaccine booster every 10 years
  – Varicella vaccination; It is recommended even if you have had chicken pox in childhood. Talk with your doctor.
• Get a yearly test for microalbumin, serum creatinine and glomerular filtration rate (GFR). Diabetes is the leading cause of end-stage renal disease.
• Have your feet examined at least once a year. Take care of your feet:
  – Look at all areas of your feet every day. Use a mirror, or have someone help you if necessary.
  – Wash feet daily with mild soap. Dry thoroughly, especially between the toes.
  – Moisturize feet daily with an alcohol-free lotion. Do not apply between the toes.
  – Inspect your shoes daily. Feeling the inside for cracks or irregularities that may irritate.
  – Wear well-fitting shoes. Wear soft cotton or wool socks.
  – Do not go barefoot, even when indoors.
  – See a Podiatrist regularly for foot care. This includes nail cutting, blisters, calluses, wounds or ingrown toenails.
• Take care of your teeth and gums:
  – Brush teeth twice daily with a soft toothbrush and fluoride toothpaste
  – Floss teeth every day
  – Visit the dentist regularly for teeth cleaning and full exam

For more information on diabetes, please contact:

**Diabetes Education**
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