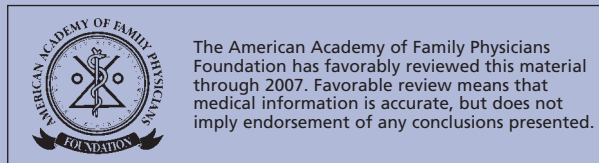
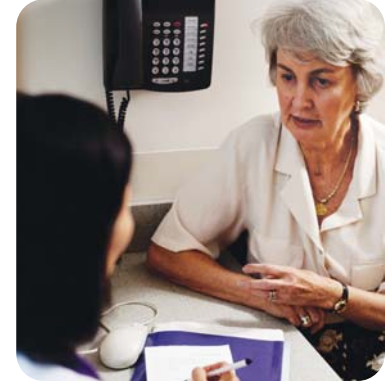


Diabetes Care

A guide on monitoring
your health



Diabetes is a lifelong condition that can cause complications over time. To reduce your risk for complications, your healthcare provider will recommend a diabetes treatment plan for you based on certain medical tests. You will also be testing your blood glucose levels between healthcare visits. It's important for you to get the medical tests, checkups, and immunizations you need when you need them.



This booklet will help you understand:

- Why regular health checkups are important
- Why blood glucose testing is the key to good diabetes care
- When to check your urine for ketones
- Which medical tests people with diabetes need regularly, and
- How often these tests should be done and why

The *Keeping Well With Diabetes* patient education materials were developed using information from the following sources: The American Association of Diabetes Educators, The American Diabetes Association, The American Dietetic Association, and The American Association of Clinical Endocrinologists. These booklets do not replace the advice of your healthcare provider. Be sure to consult your healthcare provider regarding your individual diabetes treatment plan.

Regular health care

Regular health care is important for everyone. People with diabetes need other tests in addition to routine medical tests. Some of these tests you will do daily; others will be done as often as your healthcare provider recommends. The results of these tests will help you adjust your diabetes care plan as needed, monitor your health, and detect any diabetes-related complications early.

Blood glucose testing

Testing your blood glucose level gives you the information you need to manage your diabetes on a daily basis. Most people feel better and have more energy when their blood glucose remains at or near normal levels. Keeping blood glucose levels near normal can also reduce your risk of long-term complications.



You may need to check your blood glucose level before and after meals, at bedtime, and at other times during the day. A blood glucose test taken 1 to 2 hours after a meal is called a *postprandial* reading. Glucose levels may rise substantially after you eat. Controlling these post-meal levels may be important in preventing health problems. You and your healthcare provider will decide what your blood glucose goals should be. Write your goals in the table below.

*Blood Glucose Goals (Plasma Values)**

Time	For People With Diabetes	Your Goal
Before Meals	Less than 110 mg/dL	
2 Hours After Meals (postprandial)	Less than 140 mg/dL	
A1C	6.5% or less	

Values for *whole blood glucose* meter readings are about 10% lower.

Please refer to the instruction manual for your glucose meter to determine whether it reports the results as plasma or whole blood glucose.

* Adapted from the American College of Endocrinology (ACE). Consensus Statement on Guidelines for Glycemic Control. *Endocrine Practice*. 2002;8 (Suppl 1):S5-S11.

How often and when should I test my blood glucose?

If you take insulin, you may need to test before every injection or meal or after meals. If you take diabetes pills only and your blood glucose levels are stable, you may need to test once or twice a day.

When you test your blood glucose level depends on your reasons for testing. It's easiest to see patterns in your blood glucose levels if you test at standard times, such as before meals or large snacks, before going to bed, or 2 hours after meals. Testing your blood when you are sick, when

you think your blood glucose level is low or high, or when you are more active than usual is also important.



How do I monitor my blood glucose?

You can check your blood glucose using a blood glucose meter. There are many types of meters. Most blood glucose meters measure your plasma glucose level. Read the



instruction manual for your glucose meter to see whether it reports the results as plasma or whole blood glucose. Values for whole blood glucose are about 10% lower than plasma levels.

Your healthcare provider will show you how to obtain a blood sample and help you select a blood glucose meter. Ask about InDuo®, a system which combines blood glucose monitoring and insulin dosing to give you a comfortable and discreet way to test and inject insulin.

The A1C test (hemoglobin A1C)

The A1C test measures your average blood glucose level over a period of 2 or 3 months. A1C can be measured from a finger stick blood sample or a sample from a vein. A1C test results are given as a percentage. The higher the percentage, the more glucose is in your blood. Medical

*A1C Levels and Blood Glucose Equivalents**

A1C Level	Mean Plasma Glucose
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

studies show that keeping your A1C level at or below 6.5% can help prevent or delay diabetes-related complications.

The American Diabetes Association (ADA) recommends A1C testing be done every six months if you are meeting your blood glucose goals. If you are not meeting your goals or you change your diabetes care plan, medical authorities recommend you receive an A1C test every 3 months.

* Adapted from Amer. Diabetes Association 2004 Guidelines.

When and how should I test for ketones?

Ketones are a problem mainly for people with type 1 diabetes. They are substances that appear in your urine if you don't have enough insulin. A positive urine ketone test means your blood glucose is out of control.

To test for ketones, dip a special test strip into a sample of your urine. Then match the color change of the strip to a color chart.

Your healthcare provider will tell you when to test for ketones, such as when you are ill or when your blood glucose level is high. Call your healthcare provider right away if you have ketones in your urine and don't know what to do.

Ketone Color Chart and Test Strip

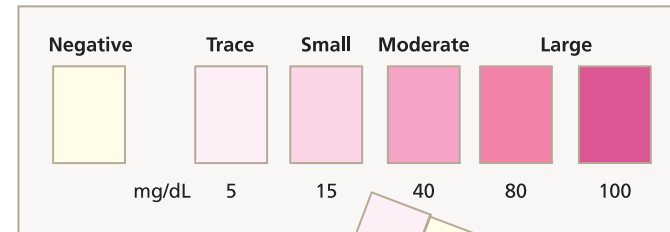
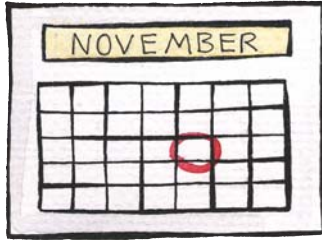


Illustration only. Do not use for testing.

How often should I visit my healthcare provider?

If you take insulin or have complications from diabetes or other health problems, you will probably need to see your healthcare provider every 3 months. Ask your healthcare provider how often you should make office visits.



What tests can I expect at each office visit?

Talk to your healthcare provider about the tests you need and what the results mean. Routine office tests include a blood glucose test, a urine test, checking your blood pressure and weight, and a thorough foot exam. It's a good idea to keep track of your test results and to ask your healthcare provider how well your treatment plan is working.

Urine and blood pressure testing

Your urine will be checked for protein and other substances to provide information on how well your kidneys are working. A urine test can also detect signs of a urinary tract infection.

Blood pressure is also checked at each office visit. High blood pressure (hypertension) is common among

people with diabetes. The American Diabetes Association (ADA) blood pressure goal for persons with diabetes is under 130/80 mmHg. Over time, high blood pressure can damage the small blood vessels in your kidneys, eyes, and large arteries. If you have hypertension, your healthcare provider may prescribe medicine to help lower your blood pressure. You can also help lower your blood pressure by maintaining a healthy weight, exercising regularly, and limiting your sodium (salt) intake.



Checking your feet

Check your feet daily for any sign of injury. Your healthcare provider should examine

your feet during every office visit.

Your healthcare provider should also give you a comprehensive foot exam at least once a year. One purpose of the exam is to test your sense of feeling in your feet. Another is to check for any signs of injury or damage

to your feet, such as red areas, swelling, or sores that won't heal.

Talk to your healthcare provider if your feet feel numb or you feel a tingling sensation at times. It could be a sign of damage to the nerves in your feet. Call your healthcare provider right away if you injure your feet in any way.

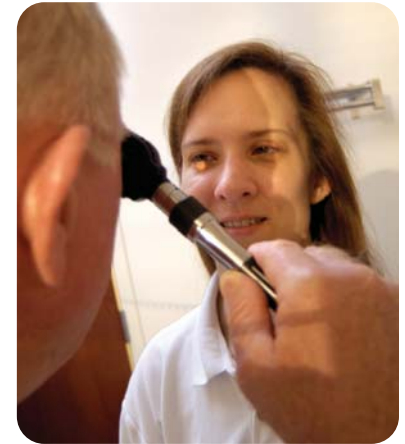


What tests should be done annually?

Once a year your healthcare provider will do certain blood tests and kidney function tests. If the results of any of these tests are abnormal, you may need to have them done more often. ADA guidelines recommend you get immunized once a year against the flu and be immunized against pneumonia at least once.

Dilated eye examination

Over time, high blood glucose and high blood pressure can damage the small blood vessels in the eyes. Your healthcare provider will refer you to an eye care specialist once a year for a dilated eye examination to check the blood vessels in your eyes. Call your eye care specialist right away if you have any sudden change in your vision.



Kidney function tests

A number of tests measure kidney function. It's a good idea to be familiar with the names of these tests and why they're important.

The microalbumin test measures small amounts of albumin (a type of protein) in your urine. Even a small amount of albumin may be a sign of early kidney damage. If the test results are positive, you may be given medicine to protect your kidneys.

A creatinine clearance test measures how well your kidneys work to clear a muscle waste product called creatinine from your bloodstream. Another kidney function test, the blood urea nitrogen (BUN) test, measures how well your kidneys clear the waste product BUN from your blood.



Blood lipid testing

Lipid testing is usually done once a year, or more often if you are taking lipid-lowering medication.

A lipid test measures the amount of total cholesterol, LDL ("bad") cholesterol, HDL ("good") cholesterol, and triglycerides in your blood. Keeping these levels within normal limits will help protect your heart and blood vessels from damage.

Blood Lipid Level Goals for Adults with Diabetes

Total Cholesterol	Less than 200 mg/dL
LDL Cholesterol	Less than 100 mg/dL
HDL Cholesterol	
Men	Greater than 40 mg/dL
Women	Greater than 50 mg/dL
Triglycerides	Less than 150 mg/dL

Source: Adapted from American Diabetes Association. Standards of medical care for patients with diabetes mellitus (Clinical Practice Recommendations). Diabetes Care. 2003; 26 (suppl 1):S37 and Third Report of the Expert Panel on Detection, Evaluation, and Treatment of High Blood Cholesterol in Adults (Adult Treatment Panel III).

Annual health examination

ADA guidelines recommend people with diabetes have a complete physical examination once a year. The purpose of this exam is to assess your overall health and to detect any signs of diabetes complications. If you already have long-term problems because of your diabetes, the examination by your healthcare provider and test results will help determine if these problems are being treated properly.

During the annual visit, your healthcare provider will assess your risk of having

future complications from your diabetes. Your risk of diabetes complications is higher if you smoke, have high LDL cholesterol, are obese, or have hypertension. If you need additional support, your healthcare provider can refer you to a certified diabetes educator, registered dietitian, or counselor.



This is a lot to remember!

Many of the tests discussed in this booklet may be new to you. Cut out the list below and keep it as a handy reminder of the regular tests and immunizations you may need.

*Diabetes Care Schedule**

Every 3 Months	Regular office visit A1C test (if your blood glucose is not stable) Blood pressure check Weight check Foot check
Every 6 Months	A1C test (if your blood glucose is stable) Dental exam
Every Year	Physical exam Comprehensive foot exam Lipid profile (if your lipid levels are normal) Kidney tests (e.g., microalbumin test) Dilated eye exam Influenza vaccine (flu shot)

* These recommendations are based on American Diabetes Association guidelines. Talk with your healthcare provider about how often you should have specific tests and immunizations.

What have I learned?

This booklet discusses the tests you can do as part of your diabetes self-care and tests, checkups, and immunizations you can expect your healthcare providers to recommend.



Diabetes care is a team effort that involves

you and your healthcare providers. Getting the tests, checkups, and immunizations you need, when you need them, will help you:

- Maintain or improve your overall health
- Manage your diabetes, and
- Reduce your risk for diabetes complications

Keeping Well With Diabetes

We're pleased to offer you this booklet as part of the *Keeping Well With Diabetes* patient education program. But *Keeping Well With Diabetes* can bring you so much more.

When you become a member of *Keeping Well With Diabetes*, a FREE program just for people who take insulin, you'll receive tools and materials that can make a difference in your daily life. Simply complete and return the postage-paid card in this booklet, call 1-800-474-KWWD (1-800-474-5993), or visit our website at www.kwwd.com.

At *Keeping Well With Diabetes* Online, you'll find useful information on living with diabetes, online newsletters, and NovoTrack,[®] a unique site that provides you with your own Personal Scorecard to keep track of your diabetes management.



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