

About 21 million Americans (1 out of 11 adults) currently have diabetes. One third of these people don't even know it. Another 54 million Americans have prediabetes, a condition that increases the risk for heart disease and type 2 diabetes. It is projected that 1 out of 3 persons born today will develop diabetes in their lifetime.

Diabetes results when the body is unable to produce insulin (type 1 diabetes) or becomes resistant to insulin (type 2 diabetes). Insulin is a hormone that is needed for blood sugar to be transported into cells where it is used for energy production. When the body can't use insulin properly, sugar accumulates in the blood causing damage to the arteries, heart, nerves, kidneys, eyes, immune system, and other tissues.

## Preventing Diabetes

The best strategy is to prevent diabetes from occurring – or to at least delay its development. In a 16-year study of nearly 85,000 nurses, researchers from Harvard University found:

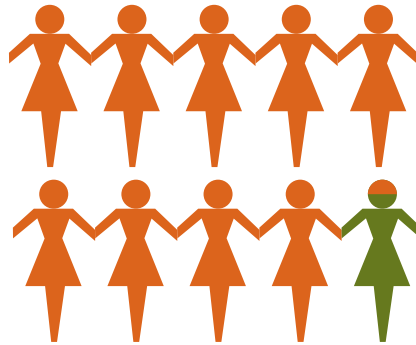
- **Overweight or obesity** was the single most important predictor of diabetes.
- **Lack of exercise, a poor diet, and smoking** were all associated with a significantly increased risk of diabetes, even after adjustment for the body-mass index.

Nurses without any of these risk factors were one-tenth as likely to develop diabetes as those who had any one of them.<sup>1</sup>

The NIH-sponsored Diabetes Prevention Program studied the effects of a healthy lifestyle on the development of type 2 diabetes among men and women at high risk of diabetes (they were overweight, inactive, and prediabetic). During the 3-year study, the group assigned to losing 5-7% of their weight, exercising 150 minutes/week, and choosing healthier food, significantly reduced their risk of diabetes – by 58% – compared to the control group assigned to usual care.<sup>3</sup>

# WHAT YOU NEED TO KNOW ABOUT Diabetes

## Lifestyle & Risk of Diabetes: Nurses' Health Study



ONE OR MORE RISKS 89%  
NO MODIFIABLE RISKS 11%

A 16-year study of 84,941 women found 4 major risk factors:

1. Overweight, 2. Sedentary lifestyle, 3. Smoking, 4. Poor diet (low fiber, high trans fats, high glycemic index)

Women with none of these risk factors cut their chance of developing diabetes up to 89% compared to all other women.

Women with a family history also cut their risk by 90%.<sup>1</sup>

## To lower your risk of type 2 diabetes:<sup>2</sup>

- **Achieve and maintain a healthy weight.** Excess body weight increases the body's resistance to insulin and is the major cause of type 2 diabetes. Losing even 10-15 pounds can significantly cut your risk of diabetes.
- **Get regular physical activity.** Exercise helps the body use insulin more effectively. Aim for 30-60 minutes of moderate activity such as brisk walking most days of the week, preferably daily.
- **If you smoke, quit.** In Harvard's Health Professional Follow-up Study, men who smoked were 92% more likely to develop diabetes.<sup>2</sup>
- **Choose healthy fats.** Eating saturated and trans fats increases the risk for diabetes. Instead, choose healthy fats such as vegetable oils (e.g., canola, olive, and soy oils), trans-fat-free margarines, nuts, and trans-fat-free baked goods (read food labels).
- **Choose unrefined carbohydrates** that are high in fiber and have a low glycemic index (i.e., carbohydrates that are absorbed slowly and help keep blood sugar levels low). Examples of low glycemic index foods include whole grains, most vegetables except potatoes, most whole fruits, legumes, nuts, and milk or soy milk.

## Risk factors for Diabetes<sup>4</sup>

- Age 45+
- Overweight
- Ethnicity: African American, American Indian, Asian American, Hispanic/Latino, Pacific Islander
- Family history, first-degree relative (mother, father, sibling)
- History of heart disease or stroke
- High blood pressure (140/90 or higher)
- Abnormal blood lipids (HDL cholesterol <40 mg/dL for men, <50 mg/dL for women)
- Triglyceride level 250mg/dL or higher
- Inactive lifestyle, exercises less than 3 times per week

## Managing Diabetes

If you have diabetes it is very important you learn how to care for your disease and get recommended health exams (ask your doctor for guidance). If you have diabetes:<sup>4</sup>

- **Attend a diabetes education class** to learn how to manage your blood sugar.
- **Check your blood sugar** (glucose) regularly as instructed by your doctor. Follow your meal plan and take medicines as needed to keep your glucose level in the zone recommended by your doctor.
- **Be physically active daily.** Physical activity helps insulin work better to regulate your blood glucose levels. It also improves circulation and enhances your overall health. Research has shown that people who exercise daily (such as walking briskly for 30+ minutes) cut their risk of early mortality from diabetes in half.
- **Choose healthy meals** low in saturated fat, trans fat, and cholesterol and high in fiber-rich foods such as whole grains, vegetables, fresh fruits, legumes, and low-fat dairy. Fish and vegetable proteins are healthy protein choices.
- **Get an A1C test** 2-4 times per year to monitor how well you are regulating your blood sugar levels. Aim for an A1C level less than 7% (aim for close to 6% without causing hypoglycemia).



- **Lose weight if you need to.** People can sometimes control their type 2 diabetes entirely by losing weight, being active daily, and eating well. Losing even 10-15 pounds can help significantly.
- **Check your blood pressure regularly.** Keep it below 130/80. High blood pressure with diabetes is very damaging to the kidneys.
- **Get a blood cholesterol check** regularly. Aim for an LDL cholesterol level less than 100 mg/dL. If needed, your doctor may prescribe medicine to help you reach this goal.
- **Have an eye exam yearly** or as your doctor recommends. Diabetes is a leading cause of blindness.
- **If you smoke, quit.** Smoking damages many of the same organs that high blood sugar does.
- **Get a kidney test yearly.** Diabetes is the leading cause of kidney failure.
- **Take good care of your feet.** Check them daily for any sores. Have your doctor check them at least yearly. Sores can develop on a diabetic's feet and become infected leading to serious complications including amputations.
- **Get a dental check** twice a year. High blood sugar affects the health of the gums and teeth.

By working with your doctor and taking good care of your health you can minimize many of the complications of diabetes and enjoy a healthy, vibrant life.

### References:

1. Hu FB, Manson JE, Stampfer MJ, et al. Diet, Lifestyle, and the Risk of Type 2 Diabetes Mellitus in Women. *New England Journal of Medicine*. 2001;345:790-7.
2. Harvard School of Public Health. *Diabetes: Simple Steps to Preventing Diabetes*. 2007.
3. National Institutes of Health. *Diabetes Prevention Program. National Diabetes Information Clearing House*. 2007.
4. National Institutes of Health. *National Diabetes Education Program. Guiding Principles for Diabetes Care*. 2007.

## The ABCs of Diabetes Control

**A** A1C < 7.0%

**B** Blood pressure < 130/80

**C** Cholesterol:

LDL cholesterol < 100 mg/dL

HDL cholesterol, men > 40 mg/dL, women > 50 mg/dL

Triglyceride < 150 mg/dL

## Diabetes Blood Sugar (Glucose) Norms

### Fasting:

<90 mg/dL	Normal
90-99 mg/dL	High normal
100-125 mg/dL	Prediabetes*
126 mg/dL or higher	Diabetes*

### Non-fasting:

200 mg/dL or higher Diabetes\*

\* Repeated on subsequent day to confirm.

## Web Resources for Further Information on Diabetes

- Your Guide to Diabetes, NIH, National Diabetes Information Clearinghouse.  
<http://diabetes.niddk.nih.gov/dm/pubs/type1and2/index.htm>
- 4 Steps to Control Your Diabetes for Life, National Diabetes Education Program  
<http://ndep.nih.gov/diabetes/control/4Steps.htm>
- Diabetes Numbers at a Glance, NIH, National Diabetes Education Program  
[http://ndep.nih.gov/diabetes/pubs/NumAtGlance\\_Eng.pdf](http://ndep.nih.gov/diabetes/pubs/NumAtGlance_Eng.pdf)
- Simple Steps to Preventing Diabetes, Harvard School of Public Health  
<http://www.hsph.harvard.edu/nutritionsource/diabetes.html>
- Diabetes Prevention, NIH, National Diabetes Education Program  
<http://ndep.nih.gov/diabetes/prev/prevention.htm>

