

Diabetes



EMPOWERING, TRANSFORMING
& SAVING LIVES.

There are two simple, yet important facts to know about diabetes:

1. Type 2 diabetes is most often curable and preventable.
2. Regular exercise is a key to minimizing the damage caused by Type 1 diabetes.

The United States is experiencing a frightening increase in diabetes. It is estimated that 25.8 million Americans have diabetes, up dramatically from 1.5 million in 1958. Even more alarming – it is estimated that 79 million adults, age 20 and over, have pre-diabetes.

Diabetes is a major health concern, since it causes serious deterioration in the body, causing strokes, kidney failure, depression, blindness, amputations and other problems. It also quadruples the risk for heart disease, the number one cause of death among diabetics. Most importantly, it causes years of misery and often results in a slow death, filled with many stress filled years for the patient and their family.

What is diabetes?

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Food is your body's source of the fuel that is needed to produce energy. Your stomach breaks down the food you eat into glucose, a common sugar and a major source of fuel for your body. The glucose is then absorbed into the bloodstream for distribution throughout the body.

Whenever you eat, the amount of glucose in the blood (blood sugar) starts to rise. Insulin is a hormone produced in the pancreas that helps move blood sugar into the cells. As blood sugar rises, the pancreas pumps more insulin into the blood to stabilize blood sugar levels by pushing more sugar out of the blood and into the cells. With diabetes the body has difficulty moving the glucose out of the blood and into the cells.

Glucose builds up in the blood, overflows into the urine, and passes out of the body, resulting in the body losing its main source of fuel - even though the blood contains plenty of glucose. The elevation of blood glucose levels in your body damages arteries, veins and capillaries, leading to stroke, heart attack, blindness, peripheral vascular disease, atrophy, embolism or kidney failure.



What are Type 1 and Type 2 Diabetes?

Type 1

With Type 1 diabetes, the pancreas does not produce the insulin needed to move glucose from the blood into the cells, and daily insulin injections are needed in order to survive.

Type 2

With Type 2 diabetes, which represents about 90% of all cases of diabetes, the pancreas continues to make insulin, however, the amount of insulin produced is insufficient, or the body doesn't respond as it should to the insulin— a situation called insulin resistance.

Insulin acts like a key that opens the insulin receptor lock on each cell to let the glucose in. With Type 2 diabetes faulty insulin-receptors may prevent the key from opening the cell, the insulin may not work properly, or your pancreas may not be producing enough insulin.

In either Type 1 or Type 2 diabetes, glucose cannot enter the cells and builds up in the blood. Eventually the increased glucose levels in the blood damage small capillaries (small blood vessels) in the body. This causes a broad array of conditions, such as kidney failure, infections that can lead to amputations, increased risk of heart disease, blindness, increased incidence of depression and many other problems.

Tragically, Type 2 diabetes, originally referred to as “adult onset diabetes,” can no longer be called that since a growing number of inactive children are developing Type 2. One researcher has stated, “if a child gets diabetes in their early teens, as many are now doing, it will take an average of 29 years off their life.”



What are the symptoms of diabetes?

Some classic symptoms of diabetes are frequent urination, chronic thirst and increased appetite. The risk of developing diabetes is high when a person is inactive, has high blood pressure, has total cholesterol of 240 or higher, triglycerides of 250 or higher or they have family with diabetes.

It is essential that you share any concerns you have about possible symptoms with your physician.

How do I know if my blood sugar is high?

There are Two basic tests for blood sugar problems:

1. Fasting glucose: the amount of glucose in the blood after not eating for 8 to 10 hours.
2. Glucose tolerance: a measure of how well your body handles a standardized sugary drink.

What can I do about my diabetes?

According to Dr. Steven Blair, formerly of the Cooper Institute where he was head of one of the worlds largest ongoing health studies, “the cause of Type 2 diabetes is inactivity.” He continues, “I keep challenging physicians: you never see a patient who has been regularly physically active, especially vigorously active; you just won’t see these people develop Type 2 diabetes!”

James Barnard, Professor of Physiological Science at the University of California at Los Angeles agrees: “By committing yourself to certain lifestyle changes, you may be able to reduce your need for medication and possibly get off and stay off diabetes drugs for the rest of your life. Plus you may be able to avoid any complications.”

In a study done with 5,990 alumni from the University of Pennsylvania, physical activity was shown to provide a protective effect against the development of diabetes. The study also showed the protective effect to be the strongest in the individuals at highest risk.

According to Prevention Magazine, “some people with diabetes believe that they can simply adjust their medications to compensate for dietary indiscretions.” In fact, says Marie Gelato M.D., PhD, Associate Professor of Endocrinology at SUNY Health and Science Center at Stony Brook, “medications are an adjunct to, not a replacement for, a good diet and exercise program.”



What about medication?

There is no medication that cures diabetes – but regular exercise and a healthy diet can. Medications may slow the progress of diabetes and control some of the symptoms, but they do not present a cure. Unfortunately this message is often not clearly communicated to Type 2 diabetes sufferers.

Exercise is proven more effective than drugs for diabetes

Scientists involved with the Diabetes Prevention Program Research Group followed 3,200 people from 27 different clinics across the country. The 3,200 people were not yet diabetics, however, they were all high risk for diabetes since they all had blood sugar levels above normal.

The participants were divided into three groups: the first group took medication, the second group took placebos and the third group focused only on lifestyle. The lifestyle group was coached on weight loss and exercised two and a half hours a week.

Three years later, the occurrence of diabetes was compared among the three groups. When compared to the placebo group, the researchers found the occurrence of diabetes to be 58% lower in the exercise group and only 31% lower in the medication group. The exercisers were nearly twice as successful as the drug takers!

Prevention?

Even moderate exercise can be enough to help those at high risk from developing Type 2 diabetes. Moderate exercise has been shown to assist the body in burning more sugar for energy and increase the cell's sensitivity to insulin, which in return helps to reduce blood sugar levels to a stable level.

Physician and Sports Medicine magazine also reported, “Exercise can play a significant role in managing blood glucose levels in women with Type 2 diabetes who become pregnant.”

After starting an exercise program it is important to work with your physician before making any adjustments to your medication.



How does cardiovascular exercise help?

Researchers have found that cardiovascular exercise may dramatically boost a vital protein in humans. This protein helps to clear glucose out of the blood and stabilize escalating glucose levels. The study looked at moderate exercisers versus higher-level exercisers. In 12 weeks both groups saw a 60% increase of this vital protein. The increase allowed 11% more glucose to clear out of the bloodstream with the same amount of insulin.

That change may possibly prevent the onset of diabetes, according to Dr. Bill Evans, Director of Noll Laboratory for Human Performance Research at Pennsylvania State University. Dr. Evans also suspects that exercise may somehow stimulate our DNA, which orders the manufacturing of these proteins.

How does strengthening exercise help?

Strengthening exercise has a direct, beneficial effect on controlling the level of blood sugar in diabetics, according to a 2001 study conducted by the USDA Nutrition Center on Aging at Tufts University. Dr Jennifer Layne, author of the study, explains: skeletal muscle accounts for 70% to 80% of the removal of sugar from the bloodstream. Adding muscle increases the body's uptake of blood sugar (glucose) and strengthening exercises have been shown to help Type 2 diabetics to reduce their diabetes medication.

A 1998 study followed individuals with impaired glucose tolerance. The study found that several months of strengthening exercises led to a much greater increase in insulin sensitivity in the participants as compared with those who engaged in just cardiovascular exercise. Also, strengthening exercise helps control body fat, which releases immune chemicals called cytokines that block insulin's signals.

Why is my doctor concerned about heart disease?

Heart disease is the number one cause of death among diabetics! According to Prevention Magazine, "diabetes can quadruple the risk of heart disease." A report in the October issue of the Journal of the American Medical Association states that "exercise may help cut the substantial risk of cardiovascular problems plaguing people with Type 2 diabetes and high blood pressure."

According to Dr. Kerry J. Stewart, author of the report, there is enough evidence from exercise studies and animal research to suggest exercise can have such benefits. Dr. Stewart goes on to say, "patients with these conditions can be treated with gym therapy, which is low risk and widely available!"

For more information check the American Diabetes Association website at www.diabetes.org

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