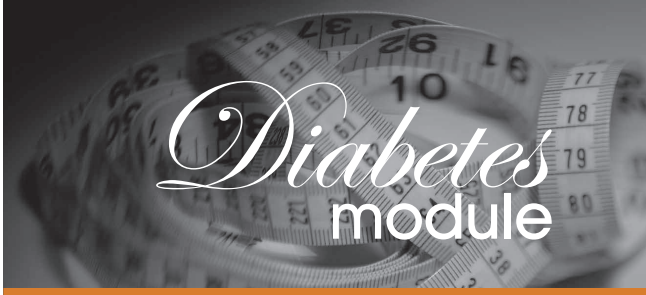
numetra™ WEIGHT MANAGEMENT SYSTEM

Diabetes: Staying Healthy for the Long Term



Sustaining your weight loss and managing your diabetes successfully are your best tickets to good health now and in the future. The Numetra System has given you the tools you need—information, skills, and new healthful habits—to do both. This module informs you about the possible long term health complications of type 2 diabetes and shows why maintaining your new weight and your normal or near normal blood glucose levels are the best ways to reduce your risk for developing these health problems.

Some Causes of Long Term Complications

Long term complications are health problems that can occur in a person who has had diabetes for a number of years. They occur mainly because of damage to blood vessels. The reason for this kind of damage is not completely understood, but it is thought that abnormally elevated blood glucose plays an important role.

The problems caused by blood vessel damage are related to the size of the vessel and the area of the body in which the problem develops. Eye, kidney, and nerve problems are related to damage to the small blood vessels—called *microvascular disease.* Heart, feet, and brain complications are caused by damage to the large blood vessels, or *macrovascular disease*.

Other factors such as high blood fat levels and high blood pressure may contribute to complications. And heredity may also play a part in determining who gets complications and who doesn't.

Some Common Long Term Complications

Some of the more common complications of type 2 diabetes are coronary heart disease, high blood pressure, stroke, nerve damage, peripheral vascular disease, retinopathy, and kidney damage.

Coronary Artery Disease

Coronary artery disease, caused by the narrowing of blood vessels in the heart, can occur at an earlier age in men and women with diabetes than in those without. This narrowing results from a build up of fatty deposits and is probably related to both high cholesterol and high blood glucose levels. This build up in the blood vessels of the heart itself can lead to chest pain, called *angina*. But with your successful participation in the Numetra System, you will have the tools to help reduce your risk for this health problem—by sustaining your weight loss and controlling such factors as cholesterol and glucose levels in your blood and hypertension.

High Blood Pressure

Almost two thirds of adults with diabetes have high blood pressure, or hypertension. Obesity and kidney disease contribute to the incidence of hypertension in people with diabetes. In turn, high blood pressure can cause heart, eye, and kidney damage. People with diabetes can manage this complication by controlling their weight, exercising regularly, limiting their salt intake, and—when necessary—taking medication.

Stroke

People with diabetes are two to three times more likely to suffer a stroke than people without. Factors that contribute to stroke are high blood pressure, atherosclerosis (hardening of the arteries), excess weight, and general poor health.

Fortunately, coronary artery disease, high blood pressure, and stroke all can be reduced by taking the same steps:

Achieve and maintain a desirable body weight.
Control your blood glucose.
Restrict dietary fat and cholesterol.
Moderate your sodium (salt) intake.
Exercise regularly.
Stop smoking.

Nerve Damage

Nerves are the communication system of the body, much like a network of telephone lines. When the nervous system is damaged—a condition called *neuropathy*—messages may become distorted or not be communicated at all. With diabetes, nerve damage caused directly or indirectly by high blood glucose levels can interfere with the communication of messages, most commonly to the feet and lower legs. This neuropathy is characterized by tingling or a loss of sensation in the toes, feet, and lower legs.

Peripheral Vascular Disease

Poor blood circulation in the legs and feet is common in people with diabetes. This condition can cause pain in the thigh or calf muscles when walking or exercising. Poor blood circulation in the feet can delay healing and increase the risk of infection with even a minor foot injury. If you have any circulation problems or loss of feeling in any part of your body, it is important for you to take extra care to avoid injury to that area and to check daily for infections or other problems.

Follow these guidelines to reduce your risk of foot problems and infections:
Examine your feet daily for cracks, blisters, infections, and injuries.
Wash your feet daily and dry between your toes, using a soft towel.
Use a moisturizing cream on your feet.
Clip toenails straight across.
Always wear something on your feet to protect them from injury.
Treat minor breaks in the skin promptly.

Retinopathy

The retina is the area of the eye where light changes into electrical impulses that are sent to the brain. Damage to this area is called *retinopathy*. About half of all people who have had diabetes for more than 10 years develop diabetic retinopathy. This figure climbs to 80% in those who have had diabetes for more than 25 years. For reasons we don't fully understand, blood vessels in the eyes seem especially vulnerable to damage caused by diabetes. In the early stages of retinopathy, the small blood vessels in the retina can leak fluid, causing objects to appear blurry.

A small percentage of people with diabetes—about 10%—experience an advanced form of retinopathy called *proliferative retinopathy*. (It's slightly more common in those who have had diabetes 15 to 20 years or longer.) In this condition, abnormal blood vessels grow in the retina and sometimes into other parts of the eye. If these vessels bleed, light can't reach the retina and vision can become cloudy—at least temporarily.

Doctors sometimes refer a patient who has been diagnosed with proliferative retinopathy to an ophthalmologist, who may recommend laser treatment to control the problem.

You can take the following steps to help prevent retinopathy:
Maintain good control of blood glucose levels.
Have regular appointments with your doctor (ideally, every 3 months, or at least every 6 months).
See an ophthalmologist once a year.
Control your blood pressure.

Kidney Damage

People with type 2 diabetes have a greater risk of developing kidney damage compared to those without diabetes. In people with poorly controlled diabetes, high glucose levels may cause kidney damage. People who develop diabetes early in life in particular (before age 20 years) have an especially high risk of kidney damage. In the past, had kidney disease 15 to 20 years after developing diabetes.

Good diabetes control, however, can reduce your risk for kidney damage. To help protect your kidneys, keep your blood glucose levels as close to normal as possible. If your blood glucose levels are frequently high your chances of kidney disease increases.

Another important way to prevent kidney damage is to avoid high blood pressure. When you have diabetes, high blood pressure adds to the damage that high blood glucose levels can cause in the small blood vessels of the kidney. Also, stay alert for kidney and bladder infections: See your doctor if you develop them.

To reduce your risk of kidney disease:
Keep blood glucose levels as close to normal as possible.
Guard against high blood pressure by maintaining your weight loss, exercising regularly, and avoiding high levels of sodium in your diet.
If high blood pressure develops, get treated right away.
Be alert for kidney and bladder infections and have them treated immediately.

In this module, we have reviewed the long term complications of diabetes and suggested ways for you to maintain good health and reduce the risk of these complications. Have you noticed the common thread? By controlling your weight, you will also have a positive impact on blood glucose levels, cholesterol levels, and blood pressure—all important factors in preventing the long term complications of diabetes.

Developed in cooperation with the International Diabetes Center, Minneapolis, Minnesota