

## Kidneys and Diabetes

Many parts of the body come in pairs. You have two eyes, two ears, a pair of legs, matching arms, hands and fingers, and a couple of feet. You also have two kidneys. Your kidneys act as the body's reprocessing machine, filtering out approximately two quarts of waste products and extra water from about 200 quarts of blood that are processed daily. Kidneys usually function without any problems. But if you have diabetes, the blood vessels in your kidneys could become injured. As a result, your kidneys would not be able to clean your blood properly and waste materials could build up in your blood.

Approximately 44 percent of people who require treatment for kidney failure have diabetes, which is the leading cause of kidney failure in the United States. There are three stages of kidney disease:

- Chronic renal insufficiency. While the organ suffers damage at this stage, there are minimal effects on the entire body.
- Chronic renal failure. Damage to the kidneys in the second stage can cause problems throughout the body, such as buildup of waste products in the blood, anemia, bone disease, acidosis, and salt and fluid retention.
- End-stage renal disease. Effects of the disease on the body are typically irreversible and require dialysis or a kidney transplant.

If you have diabetes you can take several steps to maintain your health and protect your kidneys. You can eat a healthy diet, exercise on a regular basis, take medications as directed, monitor blood glucose daily, check your feet for sores, brush and floss your teeth every day, control blood pressure and cholesterol, and not smoke.

Unfortunately, kidney damage can start long before you notice any symptoms. But even at an early stage a urine test can be performed to detect small amounts of a protein called albumin that kidneys start to leak as they become damaged. As diabetic kidney disease progresses, the kidneys leak more and more protein. Eventually some signs of developing kidney disease will begin to appear, such as high blood pressure, leg swelling or cramps, increased need to urinate, nausea, vomiting, itching, anemia, less need for insulin or anti-diabetic drugs, and diabetic eye disease.

There is no cure for diabetic kidney disease, and treatment usually involves managing the disorder to slow its progression to irreversible kidney failure. Some ways to deal with the disease include controlling high blood pressure to less than 130/80 mm/Hg, monitoring blood sugar levels, reducing dietary protein intake, staying away from



medicines that could cause kidney damage, treating urinary tract infections, exercising, and losing weight.

You probably will not feel sick when kidney damage starts, or even when your kidneys are processing blood at only half their normal rate. In fact, you may not experience symptoms until your kidneys have almost stopped working. That is why it is important to have your urine and blood checked every year to determine how well your kidneys are working. For more information about diabetes and kidney disease, talk with your doctor or visit the National Kidney Foundation website at [www.kidney.org](http://www.kidney.org).