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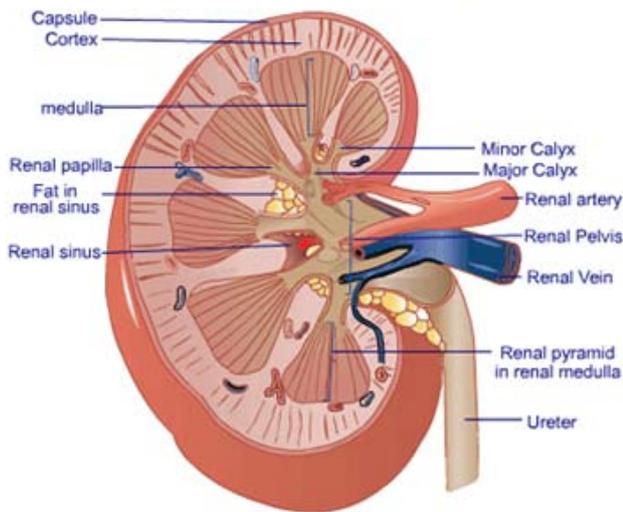
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Double Damage

Diabetes Can Damage the Kidneys!

Keeping a watch on food intake helps prevent a number of complications later, says Dr. Nupur Krishnan



In uncontrolled diabetes, too much sugar in the blood attacks tissue cells by forming harmful by-products like glycation of protein, lipids. Etc. These harmful by-products disturb the structure and function of the cells, leading to cell damage or cell death. Almost all organs are affected but most notably the heart, kidneys, eyes and nerves are slowly damaged.

Chronic diseases are on the rise, in large part due to the prevalence of diabetes. One of six adults has kidney disease, yet many people with weak or failing kidneys have no idea that anything is wrong. Chronic kidney disease (CKD) occurs when the kidneys gradually lose their ability to filter waste and toxins from the blood. Your risk of chronic disease doubles if you have both these conditions, which damage tiny blood vessels in the kidneys. If you already have diabetes, keep your blood sugar levels as normal as possible.

Complication of diabetes due to high blood sugar:

Kidney Diseases:

The membrane which filters blood thickens, thus reducing blood filtration and protein in the urine. Over a period of time this leads to damaged kidneys; 45% of kidney failure cases happen due to diabetes.

Heart diseases:

Vascular inflammation leads to narrowing of the arteries and reduces blood flow, leading to a heart attack. Heart attacks are the commonest cause of death for people with diabetes.

Eye problems:

Retinal vessels are damaged leading to fluid leakage in the retina; 50% of all blindness occurs due to diabetic retinopathy.

Foot amputations:

Nerve conduction is compromised which causes loss of sensation and delayed wound healing. More than 60% of non-traumatic lower limb amputations occur among people with diabetes.

Nerve diseases:

About 60% to 70% of people with diabetes have mild to severe forms of nervous system damage, leading to loss of sensation.

Stroke:

The risk of a stroke is 2 to 4 times higher in people with diabetes.

How Do the Kidneys Work?

- The kidneys are a pair of highly specialised organs with a complex structure.
- Each kidney contains thousands of small filtering units called 'nephrons'.
- Each nephron is made up of a cluster of small blood vessels (glomerulus) enclosed by a funnel shaped tubular structure ('Bowman's capsule' and 'Loop of Henle').
- Glomerulus filters the fluid and waste products from the blood.

How are the Kidneys Affected by Diabetes?

- The sugar (glucose) in blood is filtered by the glomerulus. When there is too much of it, as in diabetes, not all of it is taken back and it remains in the tube.
- When blood sugar is high, sugar is passed through urine. Because it is in high amounts in urine, it also retains more water, so persons with diabetes pass more urine.
- Initially the kidneys work hard to keep pace with the increased load of sugar.

Diabetes and the Kidneys

- Kidney disease caused by diabetes is called diabetes nephropathy.
- Because of great spare capacity, symptoms of kidney problems don't occur until the kidney has been severely damaged.
- Good control of diabetes prevents or delays kidney problems.
- Appropriate treatment at any stage can halt further progress of the disease.
- It is important to detect the earliest signs of kidney problems.
- Early signs of diabetic kidney problems can be detected only by laboratory examination of urine and blood.

Stages of Diabetic Kidney Disease

Stage 1 - Microalbuminuria

- Small amount of the albumin is passed in the urine
- Reversible with aggressive diabetes control and treatment
- BP may start rising and must be treated aggressively

Stage 2 - Macroalbuminuria or Proteinuria

- Increasingly larger amounts of protein are passed
- Toxic waste products start accumulating in the body, reflected by rise in blood creatinine level
- BP rises and must be treated aggressively
- Often not reversible, further progression halted with good control

Stage 3 - End stage renal disease or kidney failure

- Here the amount of urine produced decreases substantially
- Waste products accumulate to toxic levels
- Blood pressure rises dangerously
- Patients need regular dialysis for survival
- Can be reversed or halted only with kidney transplant

Monitoring Kidney Functions

Why Monitoring Kidney Functions Is Important

- In the first stage of kidney disease, neither you nor your doctor can tell that anything is wrong because there are no symptoms.
- It is important to have routine screening tests even when you feel well.
- **Presence of kidney disease further increases the risk for:**
 - High blood pressure several folds
 - Coronary heart disease several folds
- Because diabetes may remain undetected for many years, a urine test for microalbuminuria is the best way to detect early kidney damage.

Expect to have more frequent and extensive testing of kidney function if:

- Your diabetes is difficult to control
- Your doctor has detected microalbuminuria in an earlier test
- Your blood pressure is increasing
- You have associated heart disease
- **Ensure that your doctor and diabetes care team monitor:**
 - Your blood pressure at each visit
 - Test for kidney functions appropriately and as required

Testing for Microalbuminuria

- Although expensive, the dipstick microalbuminuria test accurately measures small amounts of albumin in the urine.
- Your doctor may ask you to collect all of your urine for 24 hours. The study of 24 hours urine collection is the most helpful in detecting kidney problems.

Checking Your Blood Pressure

- Rising blood pressure worsens microalbuminuria and early kidney damage.
- If kidney damage is detected, it is important to treat even small increases in blood pressure effectively.
- Your doctors may prescribe anti-hypertensive medications even if your blood pressure has only risen within the high normal range.

- Along with good glucose control, early and effective treatment of increased blood pressure is important to delay or prevent progression of diabetic kidney disease.

Steps to Control Kidney Damage

If the early signs of kidney disease are detected, you can expect your doctor to suggest the following:

- Improve your blood sugar control
- Keeping HbA1c values below 7% can be reverse and prevent further progress of kidney disease
- Any reduction in HbA1c will help to reduce rate of progress
- Take insulin, if advised
- Check for microalbuminuria and kidney function more often
- Check your blood pressure more often, preferably at each visit and monitor values; the normal values are 120/80 mmHg
- Take medication to treat high blood pressure
- Review your dietary habits in consultation with your dieticians to reduce protein content and perhaps salt

Dietary Approach

A balanced diet does not mean that you have to restrict eating the things you like. What counts is eating the right food and quantity at the right times.

- Eat 3 regular meals and 3-4 snacks at about the same time each day.
- Don't skip meals.
- Eat less sugar by opting for more fibre-rich starchy foods and spreading your carbohydrate intake throughout the day.
- Eat adequate fat and reduce intake of salts.

- Balance your meals and exercise. Avoid exercise before meals.
- Cut down on alcohol intake.

Quit Smoking!

- Smoking has been found to contribute significantly to increased risk for high BP, diabetic heart, eye, nerve, and kidney disease.
- People with diabetes who smoke are more likely to have a microalbuminuria – the first sign of diabetic kidney disease (nephropathy).
- Smoking is harmful even for people with established kidney disease.

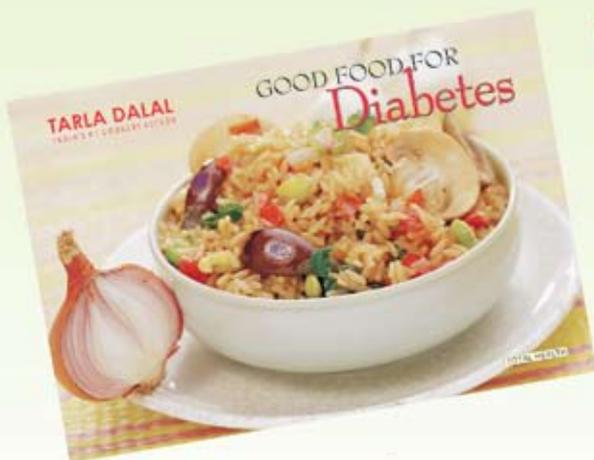
Share your feelings with your family and friends. Tell them what you need from them to help you manage your complication well. You are not alone. Millions of people have diabetes. You are lucky you know that you have diabetes. You can now take control and lead a healthy life. Unfortunately many people do not even know they have diabetes and meanwhile due to constant high sugar levels in the blood, organs like the heart, kidneys, eyes and even nerves get slowly damaged.



Dr. Nupur Krishnan - Ph.D. Food and Nutrition Director (Bio-Logics Nutrition Clinics) - is a Clinical Nutritionist with a decade of proven experience in preventive and clinical nutrition therapies for heart attack, obesity, diabetes, high cholesterol, stroke, blood pressure, thyroid, kidney disorders, liver disease, constipation, anaemia, etc.



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Control your diabetes NOW!!

Do you abstain from your favourite foods just because you have diabetes?
 Are you the one of those who thinks taste and health can't go hand in hand?

You must turn to my latest book '**Good Food for Diabetes**', a compilation of 44 diabetes-friendly recipes, carefully planned using the right ingredients. It also includes sections on basic facts about diabetes, making the right choice, nutrients that help to control diabetes, how to deal with diabetes, and a few interesting home remedies.

It's the complete guide for all you diabetic food lovers!

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