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Chronic Kidney Disease

Are you at risk?



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About Chronic Kidney Disease

Chronic kidney disease (CKD) is a condition that develops when your kidneys aren't working as well as they should. This means your kidneys cannot get rid of extra fluids and waste products in your blood. When the body cannot get rid of excess fluid and waste products serious problems, such as heart disease and stroke, can occur.

If you have CKD and it gets worse, then the waste products and fluids continue to build up in your blood and you will probably start to feel very unwell. It's also likely you may notice other problems—symptoms may include things like high blood pressure and anemia, a condition in which there is a short supply of red blood cells in the body. Bottom line—anemia makes people feel tired and typically, they have very little energy.

CKD also increases your risk of worsening heart and blood vessel disease. CKD may progress slowly over a long time. Many people don't even know they have CKD until it is very bad. If it is found and treated early,

CKD may often be slowed or stopped. If it worsens, however, CKD can lead to kidney failure. People with kidney failure are coping with a very serious disease. When you have a diagnosis of kidney failure—that means your kidneys no longer work well enough to keep you alive, and you need to go on dialysis or have a kidney transplant.

CKD Risk Factors

Anyone can have CKD—at any age. However, some people are more likely than others to develop CKD. The 2 most common CKD risk factors are diabetes and/or high blood pressure (hypertension) You may have an increased risk for developing CKD if you have obesity, over 60 years of age, have heart disease or heart failure, and/or have family members who have had CKD or kidney failure.

Diabetes

Diabetes (also called sugar diabetes or sugar disease) is a disease that causes your blood sugar levels to be too high. Blood sugar is your body's main source of energy. It comes from your food and is carried in your blood to your cells. When you have diabetes, your body either doesn't produce enough insulin or doesn't use insulin properly. Insulin is a hormone that helps your body use blood sugar for energy.

DIABETES AND CKD:

Diabetes damages the kidneys by making them work harder to filter blood. This can cause the kidneys to scar and lose their ability to filter waste products from the blood. High blood sugar can also damage your blood vessels in the kidneys, further reducing kidney function.

**In the United States,
about 37 million people
have diabetes, and about
1 in 3 will develop CKD.**

PREVENTION:

There is no cure for diabetes, but it can be managed with diet, exercise, and medication. By managing your diabetes, you can lower your risk of developing CKD. If you have diabetes, it is important to have your kidneys checked regularly by a doctor.

High Blood Pressure

High blood pressure (hypertension) is a health problem that makes your blood pressure too high. This can hurt your kidneys over time and cause CKD.

[H3 HIGH BLOOD PRESSURE AND CKD:

High blood pressure makes your kidneys work harder. This can cause scarring of the kidneys making them unable to filter blood well. High blood pressure can also damage the blood vessels in the kidneys.



In the United States, about 1 in 2 adults have high blood pressure and about 1 in 5 adults with high blood pressure will develop CKD.

PREVENTION:

There is no cure for high blood pressure, but it can be treated. By treating your high blood pressure, you can lower your risk of developing CKD. This includes taking your medications as prescribed, eating a healthy diet, exercising regularly, and losing weight if you have obesity. If you have high blood pressure, it is important to have your kidneys checked regularly by a doctor.

Age

As people age, kidneys are less able to filter waste products from the blood than in younger people. This is because kidneys naturally decline in function over time.

AGE AND CKD:

The exact cause of age-related CKD is not fully understood, but it is thought to be due to a combination of factors, including:

- **Natural aging process:** Kidneys naturally decline in function over time
- **Pre-existing conditions:** People with other health conditions, such as high blood pressure, diabetes, obesity, and heart disease or heart failure, are at an increased risk of developing CKD
- **Exposure to toxins:** Certain toxins, such as lead and mercury, can damage the kidneys and increase a person's risk of developing CKD

After the age of 40, it is normal to have a decline in your kidney filtration rates.



PREVENTION:

While you cannot prevent getting older, there are steps you can take to prevent developing CKD as you age. These are some ways to keep your kidneys as healthy as possible as you are getting older:

1. **Eat less salt:** Many seniors don't realize just how much salt they're consuming on a daily basis. Eating too much salt can increase blood pressure. Salt can also increase the chances of developing kidney stones, which can hurt your kidneys.
2. **Keep diabetes well-controlled:** CKD is considered a secondary disease. This is because developing CKD is often the direct result of other conditions, such as diabetes. If you do not have well-managed diabetes, you may be placing a lot of strain on your kidneys.
3. **Stay well-hydrated:** A key purpose of the kidneys is to filter toxins out of the blood and then get rid of the wastes through your urine (pee). If you don't drink enough water every

day, your body may not be able to fully remove the wastes from your body. If you are not well-hydrated, you increase the chances that you may develop kidney stones and CKD. It's a good idea to check with your healthcare professional to see how much fluid you should drink daily.

4. **Reduce alcohol and caffeine:** The liquids you drink go through your body, pass through your kidneys, and leave your body in your urine. Drinking too much alcohol can dehydrate you and stress your kidneys, while too much caffeine can increase your blood pressure and also make your kidneys work harder. Plain water is the best liquid to drink.
5. **Limit using painkillers:** Be careful with pain medicine, some prescription and over-the-counter pain medicines can hurt your kidneys if you take them a lot. If you need to take pain medicine, talk to your doctor about the best ones for you.
6. **Treat urinary tract infections:** Urinary tract infections (UTIs) are germs that spread up the urethra (a duct, or tube that lets urine [pee] leave your body) and into the kidneys. When germs get into your kidneys, long-term damage can happen, so it's important to treat UTIs as soon as possible. If it hurts when you urinate or if your pee looks cloudy, tell a doctor so you can get better. Antibiotic therapy can stop UTIs before the infection gets to your kidneys.

Obesity

Obesity is a condition in which a person has excess body fat. There are a number of ways to measure obesity, including body mass index (BMI), body fat percentage, and waist circumference:



- **BMI** is a measure of body fat based on height and weight, but it does not take into account factors such as muscle mass and body fat distribution.
- **Body fat percentage** is a more accurate measure of obesity than BMI. It is the percentage of body weight that is made up of fat.
- **Waist circumference** is another measure of obesity. It is the circumference of the waist at the level of the navel. A healthy waist circumference for adults ranges from under 40 inches for men and less than 35 inches for women.

Rising rates of obesity and diabetes in the United States are linked to increased risks of high blood pressure and are projected to cause an 11% to 18% surge in kidney failure by 2030.

OBESITY AND CKD:

Obesity is a major risk factor for CKD and it can lead to high blood pressure, which is the second leading cause of CKD. High blood pressure can damage the blood vessels in the kidneys, making it difficult for the kidneys to filter waste products from the blood.

Obesity can also lead to insulin resistance, which is a condition in which the body's cells do not respond normally to insulin (a hormone that helps the body use glucose for energy). When cells are resistant to insulin, glucose builds up in the blood, which can damage the kidneys.

PREVENTION:

Obesity is a chronic disease, but it can be prevented or managed with a healthy diet, regular exercise, and a healthy weight. If you have obesity, it is important to talk to your doctor about how to lose weight and manage your risk of CKD.

Heart Disease/Heart Failure

Heart disease and heart failure are two major conditions that affect the heart. Heart disease is a group of conditions that damage the heart and blood vessels.



The most common cause of death in people with CKD is heart disease.

It can cause narrowed or blocked blood vessels and lead to a heart attack. Heart failure occurs when the heart cannot pump enough blood to meet the body's needs.

HEART DISEASE/HEART FAILURE AND CKD:

Both heart disease and heart failure are risk factors for developing CKD because both conditions can damage the kidneys. The main causes of heart disease are the same as CKD, which are diabetes and high blood pressure. If you already have CKD, you are at higher risk for developing heart disease.

PREVENTION:

You can help prevent heart disease by eating healthy foods, exercising, and not smoking. It's also important to keep your blood pressure and cholesterol levels in check. If you have diabetes, it's important to manage it well. Taking these steps can help keep your heart healthy and strong.



Family History of CKD

Some diseases are said to run in the family when more than one person has the same illness. It's true that some diseases and conditions, such as sickle cell anemia, that can affect multiple family members are caused by gene variants (also known as mutations) and can be inherited (passed down from parent to child).

Since CKD affects some families more than others—understanding the factors that can lead to the disease is important so that you can prevent CKD from developing. Also, if you know you are at risk for CKD, then you can take the right steps—right away—to slow down or stop the disease from getting worse.

Social Determinants of Health

People develop CKD for a number of reasons, and many factors can increase your chances of getting it. Some of these things are medical, like having high blood pressure or diabetes.

However, environmental factors can also play a part. For example, breathing in dirty air can hurt our lungs, while while drinking contaminated water can cause stomach infections.

In addition, there are social factors, which are things like how much money we have, our education level, and our relationships with family and friends can affect our health. Discrimination and not having access to healthcare can also increase the risk of developing CKD.

According to the US Department of Health and Human Services, Office of Disease Prevention and Health Promotion report, *Healthy People 2030*, these social factors are called Social Determinants of Health, (SDoH), and they are the conditions in the environments, such as where people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks.

For example, if you are not able to buy healthy food at a store near you, then it will be hard for you to eat well. People who cannot eat healthy foods are more likely to develop serious health conditions like heart disease, diabetes, obesity, and CKD.

SDoH can contribute to developing serious long-term diseases such as high blood pressure, diabetes, lupus nephritis, and obesity—all conditions that increase your risk of developing CKD. In addition, your genetics or having family members with CKD may also play a role.

It's not always easy to be healthy or have a healthy lifestyle. And why is that? Well—the short answer is that many people, especially people living, working, and learning in under-resourced communities, simply do not have access to the very basics that are needed, such as open and green spaces like parks, reliable public transportation, healthy foods to eat, and access to appropriate medical care.



All of Us Research Program, National Institutes of Health, US Department of Health & Human Services, Social determinants of health, Twitter, June 1, 2022. Accessed May 10, 2023.

twitter.com/AllOfUsResearch/status/1532106012576063488

Other reasons include not having health insurance, not having a regular doctor who knows you and your medical history, and local healthcare and policy issues, which may not provide a clear path for patients to follow.



For example, if you are pregnant and unable to get good prenatal care, you can develop eclampsia (a type of high blood pressure that can occur during pregnancy and cause seizures—which can be life-threatening to both baby and mom) and other conditions. Eclampsia can also lead to long-term kidney damage.



CKD and Race

Over 37 million adults in the United States have CKD—and the people who are most at risk self-identify their race as:

- Black/African American
- Hispanic/Latino
- American Indian/Alaska Native
- Asian American
- Native Hawaiian/Other Pacific Islander
- Biracial
- Multiracial

The reason why some people are at higher risk of developing CKD is due to the SDoH, which has been caused by race-based social, economic, and political decisions that were made decades ago. These unfair decisions have impacted many urban and rural areas throughout the US.

Some racial groups have a higher risk of developing CKD than others—but their increased risk is not due to their race.



CKD Prevention

While many are at risk for developing CKD, not everyone does. There are usually a number of factors that come together to cause the disease. Remember, knowing the risk factors lets you take charge of your health. If you have any risk factors, you should:

- **Get tested for CKD with 2 simple tests:**
 - » A urine (pee) test (urine albumin/creatinine ratio—also known as uACR) checks to see if you have protein in your urine. Your body needs protein. But it should only be in the blood, not your urine. A small amount of protein in your urine may mean your kidneys are not filtering your blood well enough, which can be an early sign of CKD.
 - » A blood test (estimated glomerular filtration rate—eGFR) measures how well your kidneys work. Labs calculate eGFR using creatinine levels (a normal waste product in the blood), along with your age and gender.
- **Get tested for diabetes, high blood pressure, and heart disease.** If you don't know if you have diabetes, high blood pressure, or heart disease, it's important for you to find out.

Stop CKD in its Tracks

And, if you already have CKD, these tips can help you to slow down or stop CKD from getting worse.

SEE YOUR HEALTHCARE PROVIDER AT LEAST ONCE A YEAR

You take your car in for a tune-up to make sure it runs smoothly, and you should take the same care of your body. Your doctor can check for kidney disease with 2 simple tests: a urine test and a blood test. Make sure to get tested at least once a year.

CONTROL BLOOD PRESSURE

High blood pressure can damage your kidneys. If your blood pressure remains high, your doctor may have you take medicine. Simple tweaks to your lifestyle, such as cutting back on salt and alcohol, losing excess weight, and exercising can help keep your blood pressure in check.





MANAGE BLOOD SUGAR

Blood sugar levels can be influenced by several factors, including those out of a person's control such as hormones, illness, or stress. Over time, high blood sugar levels can cause blood vessels inside the kidney to become narrow and clogged which can damage blood vessels and harm the kidneys.

If you have diabetes, the best way to protect your kidneys is to manage blood sugar levels as best as possible. Your treatment plan may include changes to your diet, exercise, and medicine to lower your blood sugar levels.

EAT A HEALTHY DIET

A healthy diet plan, such as the Mediterranean Diet and the DASH (Dietary Approaches to Stop Hypertension) Diet, can help lower blood pressure and the amount of blood lipids (fat in the blood).

These meals include fresh fruits and vegetables, fat-free or low-fat milk and milk products, whole grains, fish, poultry, beans, seeds, and nuts. They also have less salt, sugars, fats, and red meats.



KEEP ACTIVE

You've heard it before! But it's important to repeat—exercise can help you:

- Maintain a healthy weight
- Control your blood pressure and cholesterol
- Build strength and endurance
- Lower your chances of getting diabetes, heart disease, and kidney disease

Many types of exercises can help you stay healthy including walking, household chores, playing a sport, or aerobic exercise (jogging, swimming, biking, climbing stairs, or hiking).

STOP SMOKING

Everyone is well aware of the dangers associated with smoking. Smoking causes diseases in every organ of the body, including the kidneys. If you cannot quit smoking on your own, ask your doctor about treatment options. You can also visit [smokefree.gov](https://www.smokefree.gov) for free help and support to stop smoking.



LIMIT OVER-THE-COUNTER PAIN MEDICATIONS

Over-the-counter pain medications can cause kidney damage. These medications are called NSAIDs (non-steroidal anti-inflammatory drugs) and include products like Advil® (ibuprofen) and Aleve® (naproxen). They are typically used to lower fevers like when someone has the flu and to reduce aches and pains due to inflammation like when we have a minor muscle ache from playing sports.

Studies have found that NSAIDs may increase the risk of developing kidney disease. Long-term use of NSAIDs, especially at high doses, reduces the blood flow to the kidney which can cause harm to kidney tissue.

It's important to know that Tylenol® (acetaminophen) is not an NSAID and is an appropriate medication to use to lower fevers and reduce minor aches and pains associated with inflammation.

If you are taking NSAIDs, you should ask your doctor about other medicines to manage pain, such as acetaminophen.





We Are Here To Help

There are two ways to learn about the many free resources available to you:

Call the National Kidney Foundation Cares Patient Help Line toll-free at **855.NKF.CARES** (855.653.2273) or email nkfcares@kidney.org

Learn more at [kidney.org](https://www.kidney.org)

Notes:

Setting a Standard for Care

The National Kidney Foundation, through its *Kidney Disease Outcomes Quality Initiative* (KDOQI®), defines stages of kidney disease and offers guidelines that help your doctor and healthcare team make important decisions about your medical treatment.

The information in this booklet is based on those recommended guidelines.



The information contained in this publication is based on current data and expert guidance available at the time of publication. The information is intended to help patients become aware of their disease and its management. This publication is not intended to set out a preferred standard of care and should not be construed as one. Neither should the information be interpreted as prescribing an exclusive course of management. Patients should always consult with their healthcare providers regarding decisions about their individual plan of care.



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The National Kidney Foundation is revolutionizing the fight to save lives by eliminating preventable kidney disease, accelerating innovation for the dignity of the patient experience, and dismantling structural inequities in kidney care, dialysis, and transplantation.

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