



Staying Healthy

with **Stages 1-3** Chronic Kidney Disease



Developed by the Medical Education Institute

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The non-profit Medical Education Institute (MEI), founded in 1992, serves the mission of helping people with chronic disease learn to manage and improve their health.

MEI programs include **Kidney School** (www.KidneySchool.org), **Home Dialysis Central** (www.HomeDialysis.org), and **Life Options** (www.LifeOptions.org).

MEI has also developed the **My Kidney Life Plan** treatment decision aid (www.MyDialysisChoice.org) and **Help, I Need Dialysis!**—the “lifestyle bible” on how to have a good future with kidney disease. To donate or to learn more, please visit www.mei.org.

Disclaimer

Staying Healthy is a guide for people who have chronic kidney disease or kidney failure. Use of this booklet does not replace the need to talk with your own doctor and healthcare team about your care and your options.

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Table of Contents

You Can Live with CKD	4
What Healthy Kidneys Do	5
Chronic Kidney Disease: Tests, Stages, Causes, & Symptoms	6
CKD Stages	7
Causes of CKD	9
Symptoms of CKD	10
How to Have a Good Life with Kidney Disease	11
Seek Treatment if You are Depressed	12
Get the Most from Your Doctor Visits	13
Protect Your Kidneys: Slow Your CKD	14
What to Eat — and What Not To	21
Know Your Medicines	25
Conclusion	27

This booklet can help you take care of yourself with *chronic* (long-term) kidney disease (CKD). Chronic disease care is complex. You may have a team of doctors, nurses, pharmacists, and others. Your care team will help plan your care so you get the tests and advice you need to stay healthy.

YOUR CARE TEAM WILL HELP YOU TO:

- Understand your job in your CKD care
- Learn about CKD and how to slow it down
- Make good food choices
- Take your medicines at the right times
- Stay active with exercise, work, hobbies, and life



You Can Live with CKD

"I am not a survivor... I am an overcomer! I do not find myself in a valley, I am climbing a mountain."

Jesse C.

Learning that your kidneys are not working as well as they should can be scary. In most cases, kidneys do not gain back function they have lost. But, there is a lot you can do to help protect the function you do have. And, there may be steps you can take to keep your kidneys from getting worse. Learn how on page 14.

For now, the key thing to know is ***you can have a good life with CKD.*** You can do things you enjoy. You can spend time with loved ones. You can work and travel. Even if your kidneys do fail one day, your life can go on with treatment. People who have CKD say that keeping a positive attitude is one of the keys to a good life.

How can you stay positive when you find out that you have kidney disease?

- **FIND SOMEONE TO TALK TO.** Burdens can shrink when you share them. Your care team can answer your questions. Since your loved ones may be just as scared as you are, finding someone who has CKD and is living well with it may be useful. There are online support groups, or your kidney clinic may know of a group near you. If you are a person of faith, your church leader may be able to ease your mind.
- **KNOW THAT THINGS COULD BE WORSE.** Some people with CKD take comfort in the fact that they have an illness that can be treated. Sadly, some health problems do not have good treatments yet.
- **LOOK FOR MEANING.** What can you learn from having CKD? Is there a way that knowing you have this health problem can improve your life? Maybe CKD will be the wake-up call you need to spend more time with loved ones, change your lifestyle, or focus on what you really want to do with your life.

Fast CKD Facts

NO ONE CAN CATCH CKD FROM YOU

It is not contagious. But, some loved ones get CKD, too, because they share a lifestyle that leads to weight gain and high blood pressure. Family members may also share genes. Ask them to be tested.

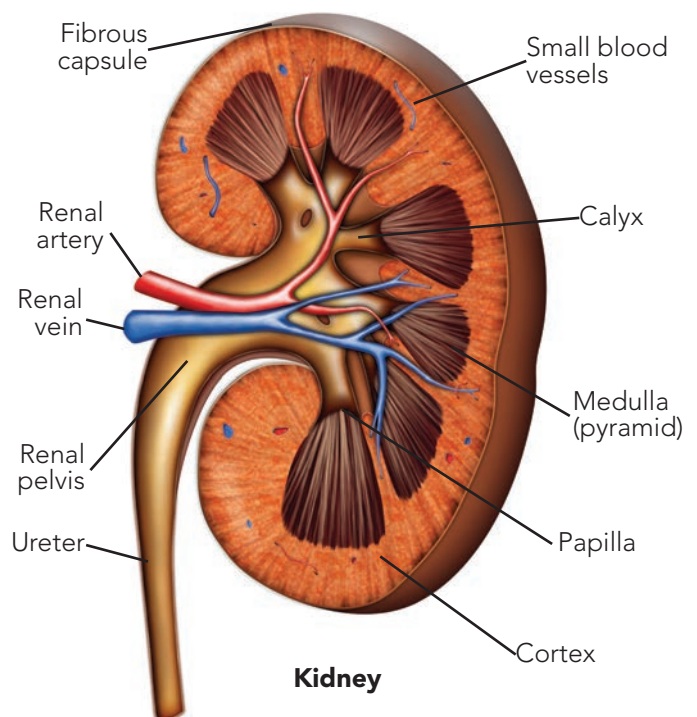
Each year, more than 124,000 Americans start dialysis due to kidney failure. Don't be one of them. Take an active role in your kidney care.

What Healthy Kidneys Do

Kidneys are bean-shaped organs found just above and within your rib cage in the back of your body. Most of us have two kidneys, each the size of a fist. The kidneys' main job is to keep *homeostasis*—a constant climate inside your body. Kidneys help your body stay in balance when they:

- **REMOVE WASTES.** You have a million or so filters (*nephrons*) in each kidney. Nephrons clean excess water and wastes out of your blood and send them through tubes (*ureters*) to your bladder as urine. *When your kidneys don't work well, wastes build up and can make you feel sick or harm your bones, nerves, and joints.*
- **CONTROL BLOOD PRESSURE.** Kidneys keep water and salts in balance in your blood. They also make an enzyme (*renin*) that helps raise blood pressure when it is low. *High blood pressure can harm your kidneys. Or, failing kidneys may let your blood pressure rise.*
- **KEEP ACID/BASE LEVELS STABLE.** Your body works best at a certain pH level. Healthy kidneys and lungs work to keep this level stable. *When your kidneys don't work well, your blood could be too acidic or too basic.*

- **MAKE HORMONES.** Hormones are messages made by one part of the body that act on another part. Kidneys make two hormones. *Erythropoietin (EPO)* tells your bone marrow to make red blood cells. *When your kidneys don't work well, you may have anemia—a shortage of red blood cells.* Active vitamin D (*calcitriol*) lets your gut absorb calcium. *If your kidneys have problems, your body may steal calcium it needs from your bones, which can cause pain and fractures.*





Chronic Kidney Disease: Tests, Stages, Causes, & Symptoms

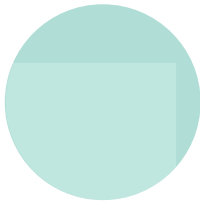
CKD is a slow process that may take years—even though you may not feel it. CKD can get worse over time. It can lead to kidney failure. By reading this booklet and working with your care team, you can help to avoid this!

A few key lab tests are often used to check how well your kidneys are working:

- **URINE ALBUMIN** (al-byoo-min). Protein (*albumin*) is too big to fit through the filters of healthy kidneys. When it leaks or “spills” out in the urine, it can mean a kidney problem. A normal level is less than 80 mg/dL per day, or 0–20 mg/dL if you pee in a cup.¹
- **CREATININE** (cree-AT-uh-noon). This waste forms in your blood each time you

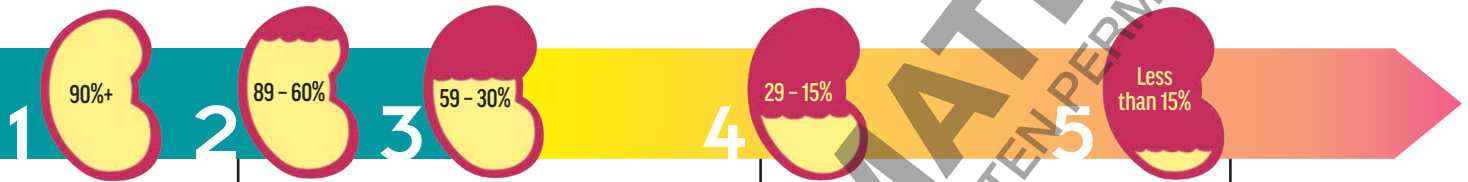
move your muscles. Healthy kidneys filter it out. When your kidneys don’t work, creatinine can build up in your blood. So, when your blood levels are high, it may mean a kidney problem. Normal levels are 0.7 to 1.3 mg/dL in men and 0.6 to 1.1 mg/dL in women.²

- **GLOMERULAR FILTRATION RATE** (GFR). Using your age, race, sex, and creatinine, a formula can tell what percent your kidneys are working. A “normal” GFR is above 90 (90% function). A GFR of 50 means you have about 50% function. You may have one kidney working at 100% and one that is not working at all. Or, each kidney may have lost about half of its function.



CKD Stages

There are five stages of CKD—based on two GFR tests at least 90 days apart.³ Stages 1 and 2 occur only in people whose kidneys are not normal. They may have been born with just one kidney. They may have kidney cysts, urine that backs up into the kidneys, or protein in their urine. *Most people find out they have CKD at stage 3, 4, or 5.* In the early stages, the risk of heart disease is higher than the risk of kidney failure. So, to feel your best, you need to protect your kidneys *and* your heart!



AT STAGES 1-3

Protect your kidneys:

- Stay active!
- Control your blood sugar if it is high.
- Control your blood pressure if it is high.
- If you smoke, quit.
- Eat real food—not processed, deep fried, or fast food.
- Talk to your care team before you take a pain pill, supplement, or vitamin.
- Ask for kidney precautions for X-ray dye tests.

To learn more about all of these, keep reading this booklet.

AT STAGE 5

All of the others, plus:

- Start treatment when you feel ill.
- Change options if your first one is not a good fit.
- Follow your treatment plan to feel your best.

AT STAGE 4

- **Protect your kidneys.**
- Learn about treatments for kidney failure.
- Take steps to get on the transplant list.
- Share your story if you want a kidney donor.
- Choose a treatment that will fit your life.
- See a surgeon for a dialysis access.

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Fast CKD Facts

OTHER ILLNESSES CAN MAKE CKD WORSE

The risk of kidney failure from CKD may be higher when you have certain other health problems, too:

- **DIABETES AND HIGH BLOOD PRESSURE**

Each of these health problems can cause kidney damage. When you have both, it's a “double whammy” on your kidneys. With both diseases, it is even more vital to take good care of yourself in the days ahead.

- **HEART DISEASE**

The kidneys and heart work together. Kidneys need to have the right amount of blood flow—not

too little and not too much—to work as well as they can. When you have heart disease, your kidneys can be harmed.

- **HIGH BLOOD CHOLESTEROL OR TRIGLYCERIDES**

High levels of these raise your risk of heart disease. Damage to your heart can also harm your kidneys. So, treating these problems can improve your health.





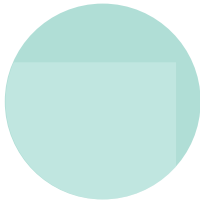
Causes of CKD

Most CKD in the U.S. has one of two causes: type 2 diabetes or high blood pressure—or both at the same time. These two health problems cause 70% of all kidney failure in America. They also cause heart disease and strokes. So, keeping your blood sugar and blood pressure in check can help your whole body. These health problems may also cause CKD:

- **Glomerular (glom-EAR-you-ler) diseases** attack blood vessels in the nephrons. Focal segmental glomerulosclerosis (FSGS) is one.
- **Type 1 diabetes** – the immune system destroys cells that make insulin.
- **Polycystic and other cyst diseases** – fluid filled bubbles replace normal kidney tissue.

- **Tumors or cancer** in the kidneys.
- **Lupus** – the immune system may attack the skin, joints, kidneys, and brain.
- **NSAIDs (non-steroidal anti-inflammatory drugs)**, like Aleve® or Motrin® or other pain pills.
- **Other rare diseases or birth defects.**
- **Unknown** – doctors may not know why the kidneys don't work.

Knowing what caused your CKD may help your doctor to treat it. In some cases, blood or imaging tests can find the causes. In other cases, a biopsy of a small tissue sample is needed.



Symptoms of CKD

The symptoms of CKD can be subtle. Some people don't have any symptoms—or don't think they do. If you have these symptoms, or they get worse, tell your care team:

SYMPTOM	RARELY	OFTEN	ALWAYS
I feel tired all the time	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel cold even when others around me are warm	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel short of breath after very little effort	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel faint, dizzy, or weak	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel very itchy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My hands or feet are swollen	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My face is swollen or puffy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Food tastes like metal and I don't want to eat	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel sick to my stomach a lot	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I can't think clearly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
People tell me my breath smells like ammonia	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I have to get up at night to make urine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My urine is foamy or bubbly	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My urine is brown, red, or purple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I feel pressure when I need to make urine	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



How to Have a Good Life with Kidney Disease

Even in stage 3 CKD, **you may have an 80% chance of never having kidney failure**—IF you take steps to protect your kidneys. To live well and as long as you can, you will need to take an active role in your CKD care. This means learning what your job is, and following through on your part. So, what is your job?

- **LEARN ALL YOU CAN ABOUT CKD AND HOW TO TREAT IT.** Knowledge helps conquer fear. Ask questions! Talk with your care team—and ask them about kidney patient groups. Your clinic or hospital may have a medical library. You can use Internet search engines (like Google or Yahoo) to learn, too. Look for websites that have the Health on the Net (HON) badges, or are from the government or other trusted sources so you know they are up-to-date and accurate.

“Things that I thought were important no longer matter to me. Money, cars, and things mean nothing. Now, I sit still and look at clouds. I listen to birds. I smell flowers and enjoy a good breeze with my granddaughter.”

Paul G.

- **KNOW WHAT TO EAT AND DRINK.**

Having CKD may mean that you need to make some changes to your meals and snacks (see pages 21–24 to learn more).

- **TAKE YOUR MEDICINES THE RIGHT WAY.**

There is no pill that will cure CKD. Your doctor may prescribe medicines to help you feel better or avoid problems. Medicines only work if you take them as prescribed—at the right times, with or without food, etc. If you can't afford your medicines, talk to your doctor. He or she may be able to find a way to help you get what you need. Think about ways to remember to take your medicines.

- **STAY ACTIVE: EXERCISE OR MOVE AROUND.**

The same things that you would do to take care of your kidneys also help protect your heart. It's

best if you can find something you like to do, so you do it and enjoy it. Talk with your care team if it has been a while since you were active.

- **BE HONEST WITH YOUR CARE TEAM.**

Your doctors and nurses are experts in CKD. And you are the expert in you and how you feel. Tell your care team about *all* of your symptoms. Be sure they know about *all* drugs you take—including prescription, over the counter, herbs, vitamins, folk remedies, or street drugs. They can only help you if they know the whole story. Tell all doctors, nurses, or pharmacists you see about your kidney disease to help prevent errors. Ask when you are not sure if something could harm you as a person with CKD.

Seek Treatment if You are Depressed

“A quick swirl in the “pity pot” is a good and sometimes needful thing. Just don’t stay in so long that you get flushed! It’s okay to ask for help when you need it.”

Walter H.

Feeling anxious, afraid, angry, or sad is very normal when you learn that you have CKD. You may even have all of these feelings at the same time. CKD is a blow to your sense of yourself as a healthy person. It can take time to adjust. You may even go through some or all of the Kubler-Ross stages of grieving before you accept CKD:

1. Denial
2. Anger
3. Bargaining
4. Depression

Depression is common when you have a life change you did not ask for and don't want. It can sap your strength and make you feel helpless. If you feel sad, angry, or irritable for more than two weeks, it may be time to get help. Treatment may involve:

- **COUNSELING** – Talking to a therapist can help you put CKD in context and feel better about the future. Ask your care team to refer you to one.
- **MEDICINE** – A number of medicines can ease depression.
- **EXERCISE** – Getting active can work as well as medicines for mild to moderate depression. Talk to your doctor before you start a new exercise plan.



Get the Most from Your Doctor Visits

Doctors are vital to your healthcare, but they are busy and not always easy to talk to. You can get the most out of your doctor visits if you:

- **WRITE DOWN YOUR QUESTIONS.**

List the most important ones first, in case you can't get to them all. Tell the doctor that you have questions, so he or she knows to save time. If you have a lot of questions, ask for a longer visit when you set up the appointment. Take notes to help remind you of what was said. Some clinics may give you a summary as you leave, which is useful.

- **KEEP YOUR OWN HEALTH**

NOTEBOOK. Make a note of any symptoms you have, when they started, and what makes them better or worse. Keep records of your lab test results so you can see how you're doing (some people track their results on a computer). Bring your notes to your doctor visits in case the doctor has questions.

- **EXPLAIN WHAT YOU KNOW (BRIEFLY).**

The doctor does not have to start at the beginning if you have been doing your homework and learning about your CKD. You will both get more out of the visit if you can start on the same page.

- **TELL THE DOCTOR WHAT YOU CARE ABOUT MOST.** Don't assume that he or she knows that you need to keep your job, or you have lost your appetite.

- **ASK IF SOMETHING DOES NOT MAKE SENSE TO YOU.** Doctors may use medical terms that you don't know. It's okay to say, "would you mind saying that in plain English?" Ask how terms are spelled so you can look them up later.

- **BRING SOMEONE WITH YOU.**

It can help a lot to have an extra pair of ears. You may stop listening if the doctor says something that scares you, and miss something that you need to know.

CKD Safety Alert:

SAVE YOUR VEINS!

If you have CKD, there may be a chance that your kidneys could fail one day. If you ever need to do hemodialysis, you will need a *vascular access* (a way to access your blood so it can be cleaned). A surgeon will link an artery and a vein, most often in the arm you *don't* write with. This is called an **AV** (*arteriovenous*) **fistula**. It's best to get a fistula at **stage 4 CKD**.

How can you save your veins? Don't let anyone:

- Draw blood from your arm (use your hand)
- Put in an IV or "PICC" line
- Take your blood pressure on that arm

These are all good steps to take—just in case. You may have to *insist* that you need to save your veins in case your kidneys fail. Some healthcare workers do not know about blood access for dialysis.

Protect Your Kidneys: Slow Your CKD

"I work to be in charge of my own care. After all, my friends and family and care team can't be with me 24/7 and watch what I am doing and eating."

Marie S.

There are a number of steps you can take to help keep your kidneys working as well as they can for as long as they can. In fact, you are the *only* one who can take the steps on the next few pages to help your health. **No one else can eat for you, take your medicines for you, or exercise for you.**

Having CKD may make you feel as if your life has spun out of control. But, you have much more control than you may think, and you can use your control to feel your best.

Don't try to change everything all at once, though! You will have a better chance of success if you ***pick one lifestyle goal at a time and stick to it.*** Think "baby steps." Give yourself small rewards along the way when you do well, like a new magazine, movie, or lunch with a friend. If you fail at first, just start again.

It can take a few weeks to replace a poor habit with a new healthy one, but you can do it. Then, once your first new habit is set, choose a new goal. Before you know it, you will have changed your health for the better.

Control Your Blood Sugar

Diabetes is the leading cause of CKD and kidney failure in the U.S. A 5-year study found that kidney damage starts even before diabetes, with blood sugar levels as low as 110.⁴ Talk to your care team about where they would like to see your blood sugar. The best way to know what your levels are is to get a meter and test strips and test it. Ask for a hemoglobin A1c test every 3 months, too. Good blood sugar control helps your whole body.

Making lifestyle changes is rarely easy. But, diabetes is, first and foremost, a blood vessel disease. Extra sugar in your bloodstream gums up your blood vessels and causes damage. The nephrons in the kidneys are blood vessels, and high blood sugar can harm them. If your A1c's are over 7%, you are at a high risk of heart and kidney problems.⁵ Your risk of eye, nerve, and limb problems may be higher, too. It's not too late to take action to lower your blood sugar. Why not start today? Here are some things you might do:

- **TALK WITH YOUR CARE TEAM** if you have questions about how to manage your blood sugar. Diabetes is a complex disease. Even those who have had it for many years still have questions. And, new information comes out all the time.
- **ASK IF YOU CAN SEE A DIETITIAN TO HELP PLAN MEALS.** It can be a big challenge to choose what to eat when you have two health problems with different



diets. A dietitian can look at what you like to eat and help you plan menus that will taste good and be healthful. He or she can help you make good food choices when you eat out, too. Medicare or your health plan may cover the cost of the visit.

- **TEST YOUR BLOOD SUGAR AS OFTEN AS YOUR CARE TEAM ASKS YOU TO.** Looking at the patterns can tell you a lot about what you are doing right and where you might need to make a change.
- **TAKE YOUR DIABETES MEDICINES AS PRESCRIBED.** Your medicines can only help lower your blood sugar if you take them.

Safety Alerts:

DIABETES MEDICINES AND CKD

- If your kidney function drops, your diabetes medicines may stay in your bloodstream longer. Your blood sugar may drop. If you notice this, tell your doctor. You may need a lower dose.
- **Metformin is not safe for some people with CKD.** Some brand names are Glucophage®, Riomet®, Fortamet®, and Glumetza®. If you take one of these and have CKD, talk to your doctor.

BEWARE OF HEARTBURN DRUGS

“Proton pump inhibitors” (PPIs) for heartburn raise the risk of kidney failure by 30%. Prilosec® and Prevacid® are common PPIs. Ask your doctor if you take a PPI. A drug in the H2 blocker class, like Pepcid® or Zantac® may be a safer choice for you.⁶



Control Your Blood Pressure

High blood pressure (hypertension) is the second leading cause of CKD in the U.S. High blood pressure harms the nephrons (filters) in the kidneys. It also raises the risk of a stroke or heart attack. There are things you can do to lower your blood pressure to the target range your doctor gives you and protect your kidneys, like:

- **EXERCISE FOR A STRONGER HEART.** A strong heart pumps with less effort, which puts less strain on your blood vessels. Start slow and build up slowly. Keep a notebook of your progress so you can see how you are getting better, faster, and stronger. Talk with your doctor before you start a new exercise plan if you have not been active in a while.
- **EAT VEGETABLES AND FRUITS.** The “DASH diet” (from the U.S. Government) may help lower blood pressure in just 2 weeks, even if you still eat salt⁷ (though it’s wise to cut back). It has lots of veggies and fruits, whole grains, low or non-fat dairy, lean

meats, nuts and seeds, and fewer fats and sweets. NOTE: Talk to your care team if you have limits on potassium. They can help you learn to choose safe portion sizes.

- **LIMIT SALT IN YOUR DIET.** When you have high blood pressure, your body may become more sensitive to salt. Eating salty foods (or foods with hidden salt) could make your blood pressure rise. See page 22 to learn more.
- **QUIT SMOKING.** If you smoke, quitting can have many benefits—like lower blood pressure. See the next page to learn more.
- **CHECK YOUR BLOOD PRESSURE AT HOME.** If you can, buy or borrow a home blood pressure monitor. Your health plan may pay for one. Check your blood pressure first thing in the morning, before bed, and a few other times a day for a week or so. Write down the results to see what patterns emerge. Bring your notes to help your doctor treat your blood pressure.

- **TRY SELF CALMING TECHNIQUES.**

Yoga,⁸ Tai Chi,⁹ or meditation⁸ may help you lower your blood pressure. These ancient practices help calm the mind and body.

- **TAKE BLOOD PRESSURE PILLS AS THEY ARE PRESCRIBED.**

Blood pressure pills need to be in your bloodstream all the time to work—not just when you think your blood pressure is up. If side effects are a problem for you, talk to your doctor. Some side effects will go away. Changing the time of day that you take a pill may help. Or, a different pill may work better for you. Blood pressure pills in classes called ACE-inhibitors* or ARBs** can help protect the kidneys, especially if you have diabetes and/or protein in your urine. Ask your doctor or pharmacist if you are taking one of these. If not, see if you should be.

*The generic names of ACE-inhibitors end in “pril” – like captopril and ramipril. ACE-inhibitors can cause a dry cough. If you get a cough after you start one, tell your doctor. He or she may switch you to an ARB instead.

**The generic names of ARBs end in sartan, e.g., losartan, irbesartan, candesartan.

Balance Your Blood pH

A healthy blood pH is between 7.38 and 7.42. When the kidneys don't work well, they can fail to keep the acid-base balance in your body. Acid can build up from protein foods you eat. Grains and protein foods like meat, eggs, dairy, beans, and peas form acid wastes when they break down. Your body needs protein for muscles and self-repair. But, most of us eat a lot more protein than we need. A low acid diet is one way to help kidneys last longer.¹⁰ Ask your doctor if taking tablets of sodium bicarbonate would be a good choice to protect your kidneys, too. They are very low cost and they work.¹¹

If You Smoke, Quit

Most people now know that smoking can hurt their heart and lungs and raise the risk of a stroke. But, few people know that smoking harms the kidneys, too. In fact, one study found that smoking scars the kidney filters.¹² If you smoke, quitting may be the best thing you can do for your whole body.

Of course, if quitting was easy, you might have done it by now. Smoke is taken in through the lungs, which have a very large surface area.



Within seconds of taking a puff, nicotine and other chemicals in smoke flow through your blood. This is why cigarettes (and crack cocaine and meth, too) are so addictive.

Nicotine patches give you small amounts of nicotine through the skin. The drug is absorbed more slowly than when you breathe in smoke. This can help you taper off and stop smoking. If you want to try this, your doctor can prescribe it for you. A prescription pill called Zyban® is also used to help people stop smoking.

Here are some other tips from www.smokefree.gov¹³ that have helped many others to quit:

- **WRITE A LIST OF REASONS TO QUIT AND PUT IT WHERE YOU KEEP YOUR CIGARETTES.** This way, you'll remind yourself of why you want to stop smoking. (If you throw out your cigarettes, you may make it easier on yourself.)
- **AVOID OR CHANGE SMOKING "TRIGGERS."** Do you always have a cigarette with your coffee? Or on your work breaks? Think of other things you could do instead. Brush your teeth. Take a shower. Change your radio station.
- **TELL OTHERS YOU ARE GOING TO QUIT.** When you have a craving, they can help you stay strong. Other tips for cravings include deep breaths, chewing sugar free gum or healthy snacks like sunflower seeds, or getting a change of scenery.
- **STAY BUSY.** Don't just sit around at home thinking about not smoking. Go places where smoking is not allowed.
- **HOLD SOMETHING IN YOUR HAND OR MOUTH INSTEAD OF A CIGARETTE.** You might hold a pen or pencil, or suck on sugar free candy or cinnamon sticks.



Get Moving!

CKD is a risk factor for heart disease and stroke. The same diseases that harm the kidneys also tend to damage the heart and blood vessels. The good news is, moving gets your blood pumping, which boosts blood flow to your kidneys—and helps your heart. So, for your body, exercise is a win-win. It may even help slow the rate of CKD.

The 10-year CARDIA study of young people (average age of 35) found that the more people weighed, the faster their kidney function fell.¹⁴ This was true even if they did not have diabetes or high blood pressure. Just being too big seemed to harm the kidneys. It's hard to lose weight, but it can be done, and there are many ways that can work. Ask for help from your care team if you need it.

THE GOAL IS 30 MINUTES OF ACTIVE MOVING EACH DAY. And, the 30 minutes don't have to be all at once. You can break your exercise into 10-minute blocks if you like.

Thinking of starting an exercise plan? If it's been a while since you've been active, talk with your doctor first. Start slow, and build up time, distance, or weight slowly. Track your progress so you can see how you're doing. You can even set goals and reward yourself when you reach them.

Exercise does not have to be a boring jog on a machine at a gym. Here are some other options you might think about, and you can come up with more on your own:

WALKING IS GREAT EXERCISE, and if you tag a loved one as a partner, you get together time, too. If the weather is nice and you live in a safe place, you can enjoy an outdoor walk. Or, many people walk in malls or at indoor tracks so they don't miss out. A jog-walk (trading off jogging and walking) will give you a more intense workout.

TAKE UP A SPORT. From bowling to tennis to badminton, if there is a team sport you like, you can spend time with others and boost your fitness at the same time.

DO SOME CHORES. Paint a fence or a wall. Get out in the garden and pull some weeds or trim the shrubs. Mow the lawn with a push mower. Vacuum a couple of rooms. You'll get something done, feel good about yourself, and be active.

DANCE, SKATE, PLAY! Whether you jump on a trampoline, paddle a canoe, or take your partner out for a spin, moving is moving. Think about what you liked as a kid—it might give you some ideas of things to try.

Avoid NSAID Pain Pills

Non-steroidal anti-inflammatory drugs can cause or worsen CKD. They reduce blood flow to the kidneys. Once you know that you have CKD, it is best to avoid:

- **ASPIRIN** (except a baby aspirin for heart health, if your doctor wants you to take it)

- **IBUPROFEN** (such as in Motrin®, Advil®, Nuprin®, Q-profen®, Wal-profen®)
- **NAPROXEN** (such as in Aleve®, Anaprox®, Naprosyn®, Midol Extended Relief®, Sudafed Sinus and Pain, Wal-proxen®)

What *can* you do for pain? Talk with your care team about the options below. Your doctor may be able to refer you to a pain clinic, too.

- **ACETAMINOPHEN** (Tylenol®) is one choice. *Do not take more than the maximum dose.* Tylenol can cause liver failure in high doses.
- **OTHER PRESCRIPTION PAIN PILLS.** Talk with your doctor about how to manage short- or long-term pain. There are special drugs for nerve pain, for example.
- **RELAXATION.** Biofeedback or other forms of training to help you relax your muscles can help some types of pain.
- **PHYSICAL THERAPY (PT).** If pain is due to tight muscles or problems with range of motion, PT may help you. Swimming, stretching, or yoga may also be of use.
- **HEAT OR COLD.** Some pain can be helped with hot or cold packs put on for 10 minutes at a time, or switching off between them. Always put a cloth over an ice pack. Frozen peas or corn work well (but don't refreeze them once they thaw). Use a heating pad on the lowest setting—and never while you sleep. *NOTE: If you have diabetes or nerve damage, use heat or cold with care—you could harm your tissues and not feel it.*
- **TENS UNIT** (transcutaneous electrical nerve stimulation). This sends a weak current into the muscle to block pain. It can also be used to treat tendonitis by sending drugs through the skin right to the tendon that has pain.

Protect Yourself from X-ray Contrast Dye

The dye that is used for CT scans and MRI tests can harm your kidneys when you have CKD. X-ray tests can “see” bones. But contrast dye is needed when the doctor wants to see soft tissue—like veins or kidneys. Contrast dye can harm the kidneys.¹⁵ When your kidneys are already at risk, this is a concern.

You can protect yourself from kidney damage due to X-ray contrast dye:

- **SEE IF THERE IS ANOTHER WAY TO LEARN THE SAME THINGS.**

Ask the doctor if an ultrasound could be done instead. Or, if digital MRI could be done with no contrast. The X-ray department may have other options. Perhaps you can avoid the contrast dye.

- **ALWAYS TELL DOCTORS AND RADIOLOGISTS YOU SEE THAT YOU HAVE CKD.**

Yes, this should be in your health record. But, doctors and nurses are human and they make mistakes. Be sure that you know the doctor has been told.

- **ASK FOR CKD PRECAUTIONS IF YOU MUST HAVE CONTRAST DYE.**

A drug called n-acetylcysteine (NAC, or Mucomyst®) can be given before an X-ray test. It protects kidneys from X-ray dye when given

with IV saline.¹⁶ A system called RenalGuard measures urine volume during an X-ray dye test. Then, it adds the same amount of IV fluid into the bloodstream. In studies, this system helped protect the kidneys better than just IV fluids.¹⁷

Get a Good Night's Sleep

You might not think that sleep has much to do with CKD. But, it may! In a study, 1,601 people with CKD were followed for 4 years—and sleep mattered.¹⁸

Kidney failure was about:

- Twice as likely in those who slept *less than 5 hours* per night
- 50% more likely in those who slept *more than 8 hours* per night
- 33% more likely in those who slept badly

MAKE GOOD SLEEP A PRIORITY.

Be sure your room and bed are comfortable. A mattress pad may help. Some people sleep better in a cool room, or with a fan on so the air is moving. Ear plugs or a sleep mask can keep you from waking up due to noise or light. Turn computer, tablet, or phone screens to night mode. Talk with your doctor about treatment for pain or other symptoms that keep you up at night.





What to Eat—and What Not To

Food is not just the fuel that makes your body run. What you eat forms the building blocks for your cells. You really *are* what you eat. So, your food can, and does, affect your health. When you have CKD, one way to feel better and protect your kidneys is to take a fresh look at what you eat. See if you might want to make some changes to your diet. Your care team may give you some tips as well.

Foods that are close to nature like fruits, vegetables, nuts and seeds, beans and peas, whole grains, and lean meats are best for your body. Food that comes in a can, box, jar, or bag has been *processed* in a factory. Most processed foods have lots of chemicals, preservatives, and fillers (like wood pulp!). Some, like natural peanut butter, canned beans, or frozen vegetables, are good choices. How do you know which are good?

READ LABELS. When a food has more than a few ingredients—or a “fresh” food, like meat or fish, has an ingredient list at all — be wary. Look for foods that have no more than five or six ingredients. You may want to make a fresh choice.

Cans of fruit, vegetables, soup, and pasta in the U.S. are lined with bisphenol A (BPA).¹⁹ BPA has been linked with high blood pressure, diabetes, and obesity. Many canned foods tend to be very high in salt or sugar and highly processed, too. Glass jars or shelf safe cartons don't have BPA.

Should you buy organic? Studies have found that organic foods may or may not be more nutritious than standard ones. But, organic foods don't have the pesticides that standard foods may have. If you can afford it, sure, buy organic.

Thin-skinned fruits and vegetables that tend to have the most pesticides.²⁰

- Strawberries
- Spinach
- Nectarines
- Apples
- Grapes
- Peaches
- Cherries
- Pears
- Blueberries
- Tomatoes
- Celery
- Potatoes
- Sweet bell peppers
- Snap peas (imported)
- Lettuce
- Hot peppers

Fast food and junk food are cheap and tasty. But...they may be made with poor ingredients or deep fried. Or, just one menu item may have enough calories and salt for a full day. Not used to cooking? Ask a friend to teach you, take a class, or watch cooking shows on TV or [YouTube.com](https://www.youtube.com). (Put “How to cook _____” in the YouTube search bar to get quick tips.) There are lots of easy, quick recipes online. Or, many grocery stores have salad bars and other healthy choices.

Protein

Protein, fat, and carbohydrates are the three main parts that make up food. **Protein is found in meats, nuts and seeds, dairy, and some vegetables.** Your body must have some protein to build muscle, red blood cells, hormones, and much more. But, most people get far more protein than they really need. And, protein wastes can be hard on weak kidneys. The nitrogen in protein is removed by the kidneys as *urea* (blood urea nitrogen, or BUN).

Your doctor may ask you to follow a moderate protein diet. If so, you will need to learn to watch protein grams and limit your intake to about 1 gram per kilogram (2.2 lbs.) of body weight each day. A dietitian will help you to:

- Weigh yourself and divide by 2.2 to find your weight in kilograms.
- Learn the protein content of foods you like.
- Eat less meat and more vegetables.
- Watch your portion sizes so you stay in the right range.

- Find other foods to make up for any protein calories you might be missing.

If your kidneys ever fail and you do dialysis, your meal plan will change. You will need to eat *more* protein again to make up for what you lose during treatment. If you have questions about protein, ask your care team.

Phosphorus

Phosphorus is found in meat, poultry, fish, dairy, nuts, beans, and cola drinks. Weak kidneys can't remove as much phosphorus from your blood. Try to limit the amount of phosphorus you eat. Your doctor may prescribe phosphate “binders” to take with each meal and snack. These take the phosphorus out of your body.

Salt

Your body needs some sodium (found in salt) to help control fluid balance and blood pressure. But, many of us get far more salt in our diets than is healthy. And, if your blood pressure is high, a high-salt diet can make it worse—and further harm your kidneys. Ask your care team how much sodium you should aim for in a day.

Salt has been used for hundreds of years to preserve and “cure” meats like bacon. Today, salt is still found in high levels in many processed foods. Know your daily limit and **read food labels**. Watch portion sizes, too.

There are low-salt options or home-made substitutes for many of these foods. **Avoid salt substitutes—many have too much potassium to be safe for you with CKD.**

SOME HIGH SODIUM FOODS

- Baking or pancake mixes
- Breads, cereals, and crackers (some)
- Canned soups and stews
- Canned vegetables (rinse well, or try frozen instead)
- Condiments, like ketchup, mustard, soy sauce, and salad dressings
- Cottage cheese and some other cheeses
- Pretzels, chips, cheese puffs
- Foods with seasoning packets (like ramen noodles, mac and cheese, flavored rice or pasta side dishes) and “Helper” foods
- Frozen dinners
- Pickled foods, olives
- Processed meats, like bacon, hot dogs, and deli meats
- Tomato and vegetable juices; spaghetti sauce

Potassium

Healthy kidneys keep the mineral *potassium* in a very tight range in your blood. This is vital—since having too much or too little can stop your heart! When you have CKD, your kidneys may be less able to get rid of excess potassium and it can build up in your body to unsafe levels. Your doctor may ask you to limit potassium in your diet to keep you safe and protect your heart. Ask how much to aim for each day. The amount may change if your kidneys get worse. Some medicines, like diuretic (water pill) blood pressure pills, can change your blood level of potassium. You may need to have blood tests to check your level.

Some foods (like potatoes and squash) can be cut into small cubes and cooked to reduce the potassium. Bring the cubes to a boil and then drain. Add fresh water and bring to a boil again until cooked.

Fluids

While your kidneys work they need blood flow, so you need to stay hydrated. It does not “stress” your kidneys to drink fluids. You should not be told to limit fluids with stages 1-3 CKD *unless you retain fluid and have swelling.*

In general, drink when you feel thirsty. Most foods have some water in them, so don’t worry about getting eight 8-oz glasses per day.

But, **don’t drink soda.** A large study has linked drinking one or more *regular* sodas a day to kidney damage.²¹ A second large study found that two or more *diet* sodas a day can lead to kidney damage or make it progress faster.²²



SOME HIGH POTASSIUM FOODS THAT YOU MAY NEED TO LIMIT

- Avocados
- Bananas
- Beets and beet greens
- Carrot juice
- Clams
- Dried beans, peas, chickpeas, soybeans, and lentils (all kinds)
- Dried fruit (e.g., apricots, dates, figs, prunes—and juice, raisins)
- “Enhanced” fresh meats (read labels and look for potassium)
- Fish (e.g., clams, cod, halibut, salmon, trout, tuna)
- Hard squash (e.g., acorn, butternut)
- Jerusalem artichokes
- Mangos
- Melons, like cantaloupe
- Milk (non-fat)
- Molasses
- Nuts
- Oranges
- Parsnips
- Potatoes and sweet potatoes
- Salt substitutes
- Spinach
- Tomatoes and tomato products
- Yogurt (low fat)

Sugar and Starch

If you are overweight or have diabetes, eating less sugar and starchy food can have big payoffs for your health. Talk with your care team about how many grams of carbohydrates (carbs) to aim for each day. A very low carb diet, and eating to the results of a blood sugar meter can help you control your blood sugar.

SWEETS & STARCHES (YOU MAY WANT TO LIMIT)

- Candy
- Corn and corn products (cereal, chips, puffs, etc.)
- Wheat products (bagels, bread, cereal, crackers, cakes, muffins, etc.)
- White rice (and rice cereal)
- Ice cream
- Potatoes and sweet potatoes
- Tropical fruits (bananas, plantains, mangos, papayas, pineapple)
- Hard squash
- Dried beans, peas, lentils, etc. (high in potassium, too)

NON-STARCHY CHOICES (EAT MORE OF THESE)

- Artichokes
- Asparagus
- Baby corn
- Bamboo shoots
- Bean sprouts
- Blueberries
- Broccoli
- Brussels sprouts
- Cabbage and bok choy
- Cauliflower
- Celery
- Cucumber
- Daikon radish
- Eggplant
- Green or wax beans
- Green onions
- Jicama
- Kohlrabi
- Leeks
- Mushrooms
- Okra
- Onions
- Pea pods and snow peas
- Peppers
- Raspberries
- Salad greens
- Spinach
- Strawberries
- Sugar snap peas
- Summer squash and zucchini
- Swiss chard
- Water chestnuts

Limit Shellfish and Meat

Research has found that a toxin called domoic acid in shellfish and some fish that eat algae can harm kidneys—in mice.²³ People are not mice. But, the really troubling finding was that very tiny levels of the toxin could harm kidneys. Shellfish also have high levels of purines, which can be a problem if you have gout. So, it may be wise to cut back on shellfish if you eat it a lot.

A large study found that protein from meat was linked with CKD that gets worse faster.²⁴ This is even more true if you are black.²⁴ Meat breaks down into acid in the body, while vegetable proteins break down into bases. Acid is harder on the kidneys. In fact, it's a good idea to ask your doctor if you should take sodium bicarbonate tablets. These can make your blood less acidic and help slow CKD.¹¹

Antioxidants May Help You

Every cell in your body needs oxygen. But, too much oxygen in the wrong places can “oxidize” and cause damage, a lot like rust. Antioxidants help protect your cells, and may help your kidneys. Ask your doctor if antioxidants like these might be worth taking:

- Coenzyme Q10
- Turmeric

NOTE: Talk to your care team before you take any supplement, vitamin, or over the counter remedy. When your kidneys don't work well, these can build up in your body to levels that could harm you.



Know Your Medicines

With CKD, your kidneys may slowly stop doing some of their jobs. The good news is, there are medicines that can pick up where your kidneys leave off.

Any drug can have side effects. Know your body and how you feel any time you start taking a new medicine. Tell your care team if you have any problems. These may go away in time. Or, the doctor may be able to prescribe a drug to help relieve a side effect.

Anemia Medicines

Anemia is a shortage of red blood cells that is common in CKD. It can make you feel weak,

worn out, cold all the time, and mentally fuzzy. In men, anemia can make erectile dysfunction worse. Getting treatment for anemia can mean the difference between being able to keep a job and go on with your life—or not. A hemoglobin blood test is used to find and treat anemia. There are two main treatments:

- **IRON.** Iron is a key building block for red blood cells. You may take iron as pills, an elixir, or in a vein. Cooking in cast iron pans can help boost your blood iron levels, too. And, some foods, like liver, are high in iron.

- **ESAs.** *Erythrocyte* (red blood cell) *stimulating agents* are man-made hormones that tell your body to make more red blood cells. ESAs are given by injection. You may be given Procrit®, EPOGEN®, Aranesp®, or Mircera®. At high doses, ESAs have been linked with heart attacks, strokes, and blood clots. But, not treating anemia has risks for you, too. Talk with your doctor about the right dose of ESA for you.

Bone Disease Medicines

Healthy kidneys keep calcium and phosphorus (phosphate) in balance to keep your bones healthy. This balance starts to fail as the kidneys lose function. Four parathyroid glands in your neck check the level of calcium in your blood. If your level drops, the glands send out parathyroid hormone (PTH). PTH tells your bones to add calcium into your blood. In time, this loss of calcium can make bones weak and frail. Three treatments can help keep your bones healthy with CKD:

- **PHOSPHATE BINDERS.** When you have too much phosphate in your blood, it can bind with extra calcium to form shards that can harm your blood vessels and

tissues. Binders attract excess phosphate in your gut, like a magnet attracts iron. They “bind” the phosphate, which is then removed in your stool.

- **ACTIVE VITAMIN D.** Kidneys make active vitamin D, or calcitriol—a hormone that lets your gut absorb calcium. You may get active vitamin D as pills or injections. The drug will help to keep your bones healthy.
- **SENSIPAR®.** This pill acts on the parathyroid glands to help shut them off so they don’t make too much PTH. Keeping the right amount of PTH in your blood will help you keep calcium in your bones, where it belongs.

Cholesterol Medicines

Statins, or drugs to lower high cholesterol, may be prescribed to help protect your heart. If you take these, ask your doctor if you should also take the supplement Coenzyme Q10 (CoQ10). Statins use up CoQ10, which can lead to heart failure in people who take them.²⁵ Taking CoQ10 with statins may help protect the heart from this type of damage.



Conclusion

CKD is something you can live with, and if you take action, you may be able to protect the kidney function you have—and keep your kidneys from getting worse. Your care team is there to help you. Ask them questions if there is something you don't understand. Don't be shy—they have heard any question you might think to ask. Taking an active role in your care now can help protect your kidneys for life.

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