



Section 5: CKD—What *You* Can Do

Most chronic kidney disease (CKD), is not curable. The good news is that if your doctor finds out early that you have a kidney problem, there may be a number of ways to help slow down the disease, help you feel better, and help you make better medical decisions. What can you do? See the list below.

*“The more informed I was, the better I felt about it. I felt I had some control.”
—CKD patient*

- 1) Know Your Lab Tests**—know the names of the lab tests your doctor orders and what the results mean. Kidney disease is often diagnosed, and always monitored, by measuring levels of substances in the blood or urine. Knowing—and tracking—your lab tests is an important way for you to be involved in your care. Normal lab test ranges vary slightly from one laboratory to another. When you get your results, be sure to ask what the laboratory’s normal range is.

Some common lab tests are listed on pages 16-18.

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Test	What it means	Normal Levels
Measures of Kidney Function		
Serum Creatinine	Creatinine is a waste product that is made when your body breaks down protein you eat and when muscles are injured. A high serum (blood) creatinine level means kidney damage. Creatinine levels may vary somewhat, even when the kidneys work normally. So, your doctor should check your level more than once before diagnosing CKD. Creatinine levels tend to be higher in men and people with large muscles. Measuring creatinine is only the first step to finding your level of kidney function.	The normal serum creatinine range for men is 0.5-1.5 mg/dL. The normal range for women is 0.6-1.2 mg/dL. Medicare pays for dialysis or transplants when the creatinine level is 8.0 mg/dL; and 6.0 mg/dL for people with diabetes.
Creatinine Clearance	Creatinine clearance is a test sometimes used to estimate filtering capacity of the kidneys. The amount of creatinine in your urine is compared to the amount of creatinine in your blood. Your doctor may test your urine by asking you to collect your urine for 24 hours in a special container.	Normal creatinine clearance for healthy men is 97-137 mL/min. Normal creatinine clearance for healthy women is 88-128 mL/min.
Glomerular Filtration Rate (GFR)	GFR is a more accurate way to measure how well your kidneys filter wastes from your blood. Your GFR gives your doctor an idea of the speed at which your kidneys are failing, and whether you are at risk for complications of kidney disease. GFR can be estimated from serum creatinine, using a formula.	Healthy adults have a GFR of about 140*; normal is greater than 90. Children and the elderly usually have lower GFR levels. A GFR less than 15 is kidney failure. <small>*GFR is reported in mL/min/1.73 m²</small>

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Test	What it means	Normal Levels
Measures of Kidney Function		
Urine Albumin	<p>Inside healthy kidneys, tiny filtering units called nephrons filter out wastes but keep in large molecules, like red blood cells and albumin (protein). Some kidney diseases damage these filters so albumin and other proteins can leak into the urine. Protein—albumin—in the urine can be a sign of kidney disease. Albumin can be measured with a urine dipstick or a 24-hour urine collection to find out how much protein is “spilling” into the urine. Albumin levels can increase with heavy exercise, poor blood sugar control, urinary tract infections, and other illnesses.</p>	<p>In a 24-hour urine sample, a normal level is less than 30 mg/day.</p>
Micro-albuminuria	<p>Microscopic amounts of protein too small to be measured with a standard dipstick test can be an early sign of kidney disease—especially in people with diabetes. Special dipsticks or laboratory tests can find microalbuminuria. The American Diabetes Association guidelines recommend that anyone with type 1 or type 2 diabetes have a test for microalbuminuria at least yearly.</p>	<p>Urine in healthy people contains less than 150 mg/L of albumin.</p>
Blood Urea Nitrogen (BUN)	<p>Blood Urea Nitrogen (BUN) is another measure of wastes (urea) in the blood. Urea is produced from the breakdown of protein already in the body and protein in your diet. A high BUN usually means that kidney function is less than normal, but other factors may affect the BUN level. Bleeding in the intestines, congestive heart failure, and certain medications may make the BUN higher than normal. As BUN rises, symptoms of kidney disease may appear, such as a bad taste in the mouth, poor appetite, nausea, and vomiting. In dialysis, BUN is used to measure whether a person is receiving the correct amount of dialysis. Sometimes a low BUN may also mean that you are not eating enough protein.</p>	<p>The normal BUN level for healthy individuals is 7-20 mg/dL in adults, and 5-18 mg/dL in children.</p> <p>Patients on dialysis have higher BUN levels, usually 40-60 mg/dL. The nephrologist (kidney doctor) and dietitian will help determine whether the BUN is in the correct range.</p>

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Test	What it means	Normal Levels
Measures of Anemia		
Hematocrit (Hct)	Hematocrit is the percentage of red blood cells in the blood, used to check for anemia. Anemia—a shortage of oxygen-carrying red blood cells—often begins at the early stages of kidney disease. It causes severe fatigue, heart damage, and other health problems. Anemia can be treated.	The normal Hct level for healthy individuals is 40%–50% for men and 36%–44% for women.
Hemoglobin (Hgb)	Hemoglobin is the part of red blood cells that actually carries oxygen. Both hematocrit and hemoglobin levels are measured to check for anemia.	The normal Hgb level for healthy individuals is 14 to 18 g/dL for men and 12 to 16 g/dL for women. The Hct is approximately three times the Hgb level.
Measures of Diabetes Control		
Hemoglobin A1c (HbA1c)	The HbA1c measures your blood sugar control over the last 3 months. According to the National Diabetes Education Program, people with diabetes should have their HbA1c tested at least once every 6 months.	The goal is to keep your HbA1c less than 6.5%.
Glucose	Glucose is blood sugar. It is measured to determine if your body is able to digest and use sugar and carbohydrates correctly. Although high blood glucose levels are mainly found in diabetics, some medications can raise your blood glucose level. Diabetes is diagnosed if the non-fasting blood glucose is higher than 200 mg/dL.	Normal (fasting) glucose levels are 65-110 mg/dL. In people with diabetes, the blood glucose goal <i>before</i> eating is 80-120 mg/dL. <i>After</i> eating, the blood glucose goal is 100-140 mg/dL.
Measures of Diabetes Control		
Albumin	The level of albumin (protein) in the blood is a measure of good nutrition. Research shows that people with kidney disease who become malnourished and do not get enough protein may suffer from many complications. It is especially important for people on low protein diets to have their serum protein levels measured.	Normal serum albumin levels in healthy people are 3.6-5.0 g/dL.



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- 2) Control Your Blood Pressure.** Keep your blood pressure below 130/85 (adults) with weight loss and exercise, a low sodium/low fat diet, reducing stress, and taking your blood pressure medication correctly. For some patients, the target blood pressure is lower (125/75). Controlling high blood pressure may delay the progression of kidney disease by slowing damage to the kidneys.
- 3) Ask Your Doctor About Certain Medications That May Help Treat Kidney Disease.** ACE (angiotensin converting enzyme) inhibitors are a class of blood pressure medicines that can protect kidney function in some cases (generic names include ramipril, captopril, and enalapril). In some people, ACE inhibitors cause a persistent cough, which stops when the drug is discontinued. This is not a serious side effect of the drug. ARBs (angiotensin receptor blockers) may sometimes be used along with or instead of ACE inhibitors. Calcium channel blockers and beta blockers are other drugs that may help to control blood pressure and protect kidney function.
- 4) Ask Your Doctor About Anemia.** Anemia—a shortage of red blood cells—starts very early in kidney failure. Anemia can cause you to feel tired and worn out, and can damage your heart. Heart disease is the leading cause of death in people with kidney problems. Ask your doctor about medications such as epoetin (EPO) and iron to treat anemia.
- 5) Ask Your Doctor about a Low Protein Diet.** Some doctors believe a diet lower in some proteins can help slow kidney disease. Ask your physician to refer you to a dietitian who specializes in treating those with chronic kidney disease. A dietitian can help you learn how to keep your kidneys healthy longer by eating the right foods. It is important not to adjust your protein intake until you have discussed this with your physician or dietitian.
- 6) Control Your Blood Sugar Levels.** If you have diabetes, stay at a healthy weight, exercise, and take medications as prescribed to keep your blood glucose in the “normal” range. Tight control of blood sugar can help slow the progression of kidney disease. Your HbA1c levels, which measure your blood sugar control over a period of 3 months, should be less than 6.5%.

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- 7) **Quit Smoking.** In people with kidney disease, smoking is linked to an increase in the amount of protein spilled in the urine. In smokers with diabetes, kidney disease may progress twice as fast. Scientists are not sure why this is the case, but if you have kidney disease and you smoke, quitting may help slow down the damage.
- 8) **Avoid Certain Pain Medications.** Ask your doctor or healthcare specialist about certain pain medications. Some over-the-counter pain pills containing ibuprofen, naproxen, and ketoprofen (e.g., Motrin[®] and Advil[®], and Aleve[®]) can affect kidney function. This is especially true if you have kidney, heart, or liver disease or take diuretics (water pills.) Avoid using combinations of these pain medications and caffeine because these combinations can further damage your kidneys.
- 9) **Exercise.** With your doctor's OK, start a regular exercise program to control weight and keep your heart healthy and blood vessels working as well as possible. It is very important to keep your muscles and joints in good working order. Although written for people on dialysis, *Exercise: A Guide for People on Dialysis* (can be downloaded from http://www.lifeoptions.org/combined/materials/pa_print.shtml) provides useful information to help anyone with a chronic illness increase physical activity.