

Kidney Disease, High Blood Pressure, and Urine Proteins

How is kidney disease linked to high blood pressure?

Your kidneys have an important job. They are responsible for “cleaning” all of the blood in your body. This cleaning takes place in the **nephrons** [NEFF-rons] which get nutrients and oxygen from tiny blood vessels called **capillaries** [CAP-il-lair-eez]. Your capillaries are very fragile. Constant high blood pressure can damage the capillaries. This may keep blood from reaching the nephrons, making it harder for your kidneys to remove waste from the blood.

Managing blood pressure

Normal blood pressure is less than 120 “over” 80 (120/80). For most people, if the top number (**systolic**) is more than 130 or the bottom number (**diastolic**) is more than 80 (130/80), it’s considered **stage 1 high blood pressure** (hypertension), and if above 140/90 it is **stage 2 high blood pressure**.

If you have kidney disease, your goal will likely be below 130/80. Your healthcare provider will work with you to set an individualized goal based on your age, urine protein level, and other health concerns.

By keeping your blood pressure in control you can reduce the protein in your urine and slow the progression of kidney disease. Following the **MAWDS** plan can help:

- M** Take prescribed medicine as directed.
- A** Increase your physical activity.
- W** Maintain a healthy weight.
- D** Eat a healthy diet that that’s low in sodium (salt).
- S** Stop smoking and manage stress.

To learn more about the MAWDS plan, [see page 2](#).



High blood pressure can cause kidney disease.

High urine proteins are a sign that your kidneys aren’t working properly.

Controlling your blood pressure can reduce urine proteins and slow the progress of kidney disease.

How are urine proteins linked to kidney disease?

Healthy kidneys filter waste into your urine (pee), but leave protein in your body. Kidneys that are damaged cannot filter protein very well, so those proteins are passed into your urine. A simple test, called an **albumin-creatinine** [al-BY00-min kree-AT-n-een] ratio (ACR), can tell your healthcare provider how much protein is in your urine. If you are at risk of developing kidney disease, or you have kidney disease, this test should be performed at least once a year or more frequently.

Manage your blood pressure with **MAWDS**

“MAWDS” can help you manage your blood pressure (BP) and reduce urine proteins. It means:



Medicine — Take your medicine.

The best way to manage your blood pressure is to take your BP medicine **every day**. Make sure you understand how and when to take your medicine. Even if your blood pressure has reached its goal, it may not stay there without your medicine. See page 3 for information on the types of medicines that can lower blood pressure and urine proteins.



Activity — Stay active every day.

Staying active is one of the best ways to control your blood pressure. Getting at least **30 minutes of moderate-level aerobic exercise** most days can help you lower your systolic blood pressure by as much as 9 points.

What does “moderate-level aerobic exercise” mean? Aerobic exercise uses your muscles. Examples include biking, brisk walking, swimming, hiking, and dancing. At a moderate level, you breathe a little harder but aren’t out of breath. You feel invigorated, but not exhausted.



Weight — Maintain a healthy weight.

Being overweight increases your risk of high blood pressure. Studies show that if you’re overweight, you can reduce your systolic blood pressure by 2 to 10 points for every 10 pounds that you lose. Losing even 5 to 10 percent of your current weight can lower your risk. If you weigh 200 pounds, that means losing just 10 to 20 pounds.

How can you know if you’re overweight?

A good way to tell is your body mass index (BMI). The BMI formula compares your weight to your height. If your BMI is greater than 25, you’re overweight. (If you have advanced kidney disease, you might be underweight. In this case, it’s important not to lose weight.) The best ways to reach and maintain a healthy weight are to be active and follow a healthy eating plan.



Diet — Eat a healthy diet that’s low in sodium (salt).

Following a healthy eating plan that limits sodium to less than 2,000 mg per day can lower your systolic blood pressure by 2 to 8 points. One study showed that you may be able to reduce your blood pressure after just 2 weeks!

Tips on reducing sodium:

- **Don’t add salt to food you prepare or eat.**
- **Avoid high-sodium foods** like canned soups and sauces, pizza, hot dogs, salty snacks, potato salad, pickles, and processed meats.
- **Read food labels carefully.** Check the serving size on every food label. That is the basis for the sodium value and other nutrition facts. Choose foods that have less than 5% of the daily sodium value **per serving**.
- **Look for “unsalted,” “no salt added,” or “low-sodium” versions of your favorite foods.**
- **When you eat out**, ask for condiments and dressings “on the side.”
- **Limit salt substitutes.** Many salt substitutes are high in potassium. Potassium is a mineral that can build up in your blood if you have kidney disease and lead to other health problems. Instead of salt substitutes, consider using lemon, herbs, and herb seasoning mixes.



Smoking, and **S**tress — Stop smoking, manage stress.

Tobacco use harms your arteries and increases your blood pressure. Lots of stress over many months or years also can hurt your body. Quitting smoking and learning to manage stress can lower your blood pressure and improve your overall health.

For other Intermountain resources that can help you learn more about high blood pressure and how to control it effectively, see page 4.

Taking blood pressure medicine

- **Make sure you understand exactly how to take your medicines**, including when to take them, how much to take, whether to take them with food, and what to do if you miss a dose.
- **If you're concerned about cost, talk to your healthcare provider.** There may be a less expensive drug or generic form you can use instead.
- **Make your medicines part of your daily routine.** For example, take them when you brush your teeth in the morning or before bed.
- **Make sure your healthcare providers know what other medicines you're taking.** This includes over-the-counter medicines or supplements which can interfere with your prescription medicines.
- **Plan ahead for refills.** Many doctor's offices won't refill medicines on weekends. Always make sure you have a one-week supply.
- **Do NOT stop taking your medicines, unless your healthcare provider tells you to.** Even if your blood pressure has reached its goal, it may not stay there without your medicines.

Common blood pressure medicines

The table below lists the most common categories of blood pressure medicine. Your healthcare provider will prescribe the best medicines for your unique situation.

Category	How these medicines help	Common examples
Angiotensin-converting enzyme (ACE) inhibitors	ACE inhibitors lower blood pressure by helping the blood vessels open wider. They also work directly to reduce urine proteins. ACE inhibitors may cause a cough. If they do, contact your healthcare provider.	benazepril, captopril, enalapril, fosinopril, lisinopril, moexipril, perindopril, quinapril, ramipril, trandolapril
Angiotensin receptor blockers (ARBs)	ARBs also help blood vessels open wider, helping to lower the blood pressure. ARBs also reduce urine proteins.	azilsartan, candesartan, eprosartan, irbesartan, losartan, olmesartan, telmisartan, valsartan
Diuretics	Diuretics ("water pills") help the kidneys reduce the amount of sodium and water in the body, which reduces blood pressure. Your doctor may prescribe more than one diuretic at a time.	bumetanide, chlorthalidone, furosemide, hydrochlorothiazide, metolazone, torsemide
Aldosterone receptor antagonists	Aldosterone receptor antagonists trigger the kidneys to get rid of unneeded water and sodium through urine. This lowers the volume of blood that the heart must pump, which lowers blood pressure.	eplerenone, spironolactone
Calcium channel blockers	Calcium channel blockers keep calcium from entering the cells of your blood vessels. This helps them open wider so blood pressure goes down.	amlodipine, diltiazem, felodipine ER, isradipine, nifedipine ER, verapamil
Beta blockers	Beta blockers reduce nerve impulses to your heart and blood vessels. This decreases the force of the heartbeat to lower blood pressure.	atenolol, bisoprolol, carvedilol, labetalol, metoprolol, metoprolol ER, nadolol, nebivolol, propranolol
Alpha blockers	Alpha blockers reduce nerve impulses to blood vessels, allowing blood to flow more easily.	doxazosin, prazosin, terazosin

Checking your blood pressure

Your healthcare provider may ask you to monitor your blood pressure regularly at home. Checking helps you and your healthcare provider see how well lifestyle changes and medicines are controlling your blood pressure. This can help fine-tune your treatment plan.

Here are some tips for choosing and using a blood pressure monitor:

- Choose a monitor with a cuff that wraps around the upper arm, and make sure the cuff is the right size.
- Look for a monitor that also shows your heart rate.
- Try to get readings at a consistent time each day, usually morning or evening. Don't take your blood pressure within 30 minutes of eating a heavy meal, using caffeine, exercising, or using tobacco.
- Sit quietly for 5 minutes before taking your blood pressure. It's also a good idea to take 3 readings about 5 minutes apart.
- If you can, rest your arm on a table or on the arm of a chair, at the level of your heart. Rest both feet flat on the floor.
- Bring your monitor to your doctor's office visits. Your doctor may check that the monitor readings are similar to your in-office BP checks. This can help you feel more confident about your readings at home.

Other Intermountain resources

The following resources can help you learn more about high blood pressure and how to control it effectively:

- **BP Basics**
For more details on lifestyle changes and other treatments for high blood pressure, ask about this booklet.
- **BP Tracker**
This tracker gives you an easy way to record your blood pressure regularly.
- **The Weigh to Health®**
Intermountain's The Weigh to Health® booklet provides advice and encouragement to help you with your weight loss goals. Ask about this booklet and Intermountain's Weigh to Health Nutrition Program.
- **Quitting Tobacco**
Your Journey to Freedom: For help to quit smoking, ask for this booklet that has information and strategies to help you become tobacco-free for life.
- **IntermountainHealthcare.org**
Check our website for more information and additional online resources.