

Kidney Disease & Diet

Fact Sheet



Your kidneys are vital organs that filter waste, balance electrolytes, and regulate blood pressure. Supporting kidney health through proper nutrition can prevent or slow the progression of chronic kidney disease (CKD).

The typical Western diet, characterized by high intakes of calories, saturated fats from animal products, sodium, and refined sugars, and low consumption of fruits, vegetables, legumes, and other fiber- and antioxidant-rich foods, drives hypertension, insulin resistance, and dyslipidemia—key factors leading to CKD.

Key Dietary Recommendations for CKD Patients

Sodium Restriction

Evidence shows that patients with chronic kidney disease (CKD) are more sensitive to salt than the general population. Higher sodium intake has been linked to a faster decline in kidney function, as measured by eGFR. Additionally, higher sodium intake can reduce the effectiveness of medications, such as ACE inhibitors, which are used to lower blood pressure and reduce protein in the urine (proteinuria). A review found that reducing salt intake can help decrease both proteinuria and blood pressure, making it an important dietary strategy for managing CKD.

Foods High in Sodium:

- Processed meats: bacon, deli meats, sausages, and hot dogs
- Packaged and canned soups, beans broths, and stews (unless "no salt added")
- Packaged snacks: chips, pretzels, popcorn with added salt
- Restaurant meals: many restaurant dishes contain sodium from sauces, dressings, and cooking methods. Fast-food items are especially high in sodium, even when marketed as "healthy" options. Most restaurant pizzas.
- Condiments and sauces: soy sauce, barbecue sauce, ketchup, and salad dressings
- Pickled foods: pickles and olives

Best Foods to Limit Sodium:

- Fresh or frozen vegetables and fruits (opt for "no added salt" options)
- Legumes and beans: cook dried beans or rinse canned beans to reduce sodium
- Whole grains: quinoa, brown rice, barley, and oats
- Herbs, spices, and salt-free seasonings (e.g., garlic, lemon juice, turmeric, basil, or pepper)
- Homemade meals with fresh, unprocessed ingredients
- Nuts and seeds: unsalted varieties
- Low-sodium alternatives: look for "low sodium" or "no salt added" on food labels

By focusing on whole, unprocessed plant-based foods and seasoning meals with herbs and spices instead of salt, you can manage your sodium intake, protect your kidneys, and support better blood pressure control.

Low Animal Protein Intake

Several meta-analyses have demonstrated that plant-based, low-protein diets can slow the progression of CKD and delay the need for dialysis by approximately one year. These diets have also been shown to improve related health issues, including:

- Secondary hyperparathyroidism
- Insulin resistance
- High cholesterol (hyperlipidemia)
- High blood pressure
- Elevated aldosterone levels
- Increased endothelin levels

Phosphorus Restriction

High phosphorus levels (hyperphosphatemia) are a major contributor to bone disease in patients with CKD and are an independent risk factor for mortality in CKD stages 3 and 4.

Phosphate additives, commonly used as preservatives, are especially concerning. For example:

- Processed red and white meats can contribute 300-500 mg of phosphorus per day, 80% of which is absorbed in the gastrointestinal (GI) tract.
- In contrast, phosphorus naturally found in plant foods is far less absorbable, with only 30-40% being absorbed by the body.

Patients with CKD are advised to:

- Limit daily phosphorus intake to 800-1,000 mg.
- Avoid phosphorus-containing additives, which are prevalent in processed foods such as frozen meals, dry food mixes, packaged meats, baked goods, soups, and yogurt. These additives can add an extra 700-800 mg of phosphorus per day.
- Limit colas and certain other carbonated beverages, as they are high in readily absorbable, inorganic phosphates.

Focusing on whole, unprocessed plant-based foods can help reduce phosphorus intake and improve CKD management.

A Diet High in Fiber and Low in Saturated Fat and Cholesterol

Cardiovascular disease is the leading cause of death for individuals with CKD, often occurring before the development of end-stage renal disease (ESRD). A key factor contributing to this risk is dyslipidemia, which is common in CKD. It is characterized by elevated triglycerides, increased VLDL cholesterol, and reduced HDL cholesterol levels. This imbalance, along with proteinuria, has been shown to improve with a plant-based diet.

A diet centered on whole plant foods—such as fruits, vegetables, legumes, whole grains, nuts, and seeds—offers significant benefits. Plant-based diets are naturally low in saturated fat and cholesterol and rich in fiber, which supports improved lipid profiles, reduced inflammation, and better overall kidney function.

Fruits and vegetables also play a crucial role in reducing net acid excretion, helping to buffer metabolic acidosis, a common issue in CKD. In fact, the acid-reducing effects of high fruit and vegetable intake are comparable to the clinical use of sodium bicarbonate. This benefit contributes to improved kidney health and reduces the risk of CKD progression.

Additionally, a recent systematic review and meta-analysis found that dietary fiber supplementation significantly reduces serum urea and creatinine levels—important markers of kidney function. High fiber intake is also associated with lower mortality rates in individuals with CKD.

Focusing on a diet rich in whole, fiber-filled plant foods and free from saturated fat and cholesterol is a powerful tool to reduce cardiovascular risks, improve kidney function, and support overall health in patients with CKD.

Enhance Gut Health to Support Kidney Health

Emerging research underscores the critical connection between the gut and kidneys, often referred to as the gut-kidney axis. This bidirectional relationship highlights how gut microbiota—trillions of microorganisms residing in the digestive tract—can significantly influence kidney function. Dysbiosis, or an imbalance in gut bacteria, has been linked to increased inflammation, oxidative stress, and the progression of CKD. Supporting a healthy gut microbiome through dietary choices can help reduce inflammation, improve metabolic health, and slow CKD progression.

How Gut Health Impacts Kidney Health

When the gut microbiota is healthy, it produces beneficial short-chain fatty acids (SCFAs) such as butyrate, acetate, and propionate, which have anti-inflammatory effects and help maintain the integrity of the gut barrier. A healthy gut barrier prevents the translocation of harmful bacterial metabolites like lipopolysaccharides (LPS) and uremic toxins (e.g., indoxyl sulfate and p-cresyl sulfate) into the bloodstream, where they can exacerbate kidney damage. Conversely, an imbalanced gut microbiome can increase these toxins, contributing to systemic inflammation and worsening CKD.

Gut-Friendly Foods for Kidney Health

1. Prebiotic Foods

Prebiotics are nondigestible fibers that feed beneficial gut bacteria, fostering a healthy microbiome. Consuming prebiotic-rich foods helps increase SCFA production and supports kidney health by reducing systemic inflammation and oxidative stress.

Examples: Garlic, onions, leeks, asparagus, bananas, chicory root, artichokes, and oats.

2. Fermented Foods

Fermented foods provide live probiotics that enrich the gut microbiome with beneficial bacteria. These probiotics can enhance gut health, modulate the immune system, and reduce the levels of harmful uremic toxins.

Examples: Kimchi, sauerkraut, miso, tempeh, pickles (fermented naturally), and plant-based yogurts with live cultures. (be mindful of sodium content)

3. High-Fiber Foods

A plant-based diet rich in diverse fiber sources promotes gut microbial diversity and SCFA production, which protects kidney health. Aim for a variety of vegetables, fruits, legumes, whole grains, nuts, and seeds to maximize fiber intake.

Examples: Lentils, chickpeas, black beans, whole grains like quinoa and barley, chia seeds, and leafy greens.

4. Polyphenol-Rich Foods

Polyphenols, found in many plant-based foods, are metabolized by gut bacteria into bioactive compounds that reduce inflammation and oxidative stress. These compounds may help mitigate CKD progression and protect kidney function.

Examples: Berries (blueberries, strawberries, and blackberries), green tea, turmeric, cacao, and red cabbage.

6. Avoid Artificial Sweeteners

Research suggests that some non-nutritive sweeteners, commonly found in diet sodas and sugar-free products, may negatively impact gut microbiota composition and kidney function. Studies indicate that sweeteners like saccharin, sucralose, and aspartame can alter the balance of gut bacteria, reducing microbial diversity and promoting dysbiosis. This disruption in the gut microbiome has been associated with increased systemic inflammation, insulin resistance, and metabolic dysfunction, all of which can contribute to kidney damage over time.

Additionally, some artificial sweeteners may increase the production of uremic toxins like indoxyl sulfate and p-cresyl sulfate, which are harmful to kidney function, particularly in individuals with CKD. While more research is needed to fully understand these mechanisms, current evidence suggests that limiting or avoiding artificial sweeteners may support both gut and kidney health.

For sweet alternatives, consider options like small amounts of maple syrup or dates/date paste, which have shown fewer negative effects on gut microbiota.

Conclusion

Protecting your kidney health starts with what's on your plate. A diet centered on whole, plant-based foods—rich in fiber, antioxidants, vitamins, and minerals—can slow the progression of CKD, improve cardiovascular outcomes, and support overall well-being. Prioritize fruits, vegetables, legumes, whole grains, nuts, and seeds while limiting sodium, animal proteins, processed foods, and artificial additives. These nutrient-dense, plant-forward choices not only reduce inflammation and acid load but also promote a healthy gut microbiome, which is essential for kidney function. By making informed, thoughtful dietary decisions, you can take an active role in preserving your kidney health and improving your quality of life. Always consult with a [healthcare provider](#) that uses nutrition as a cornerstone in their practice.

References

McMahon EJ, Campbell KL, Bauer JD, et al. Altered dietary salt intake for people with chronic kidney disease. *Cochrane Database Syst Rev*.

Thilly N. Low-protein diet in chronic kidney disease: from questions of effectiveness to those of feasibility. *Nephrol Dial Transplant*. 2013;28(9):2203-5.

Liu HW, Tsai WH, Liu JS, et al. Association of Vegetarian Diet with Chronic Kidney Disease. *Nutrients*. 2019;11(2).

Zarantonello D, Brunori G. The Role of Plant-Based Diets in Preventing and Mitigating Chronic Kidney Disease: More Light than Shadows. *J Clin Med*. 2023;12(19):6137.

Chauveau P, Combe C, Fouque D, et al. Vegetarianism: advantages and drawbacks in patients with chronic kidney diseases. *J Ren Nutr*. 2013;23(6):399-405.

Koeth RA, Wang Z, Levison BS, et al. Intestinal microbiota metabolism of l-carnitine, a nutrient in red meat, promotes atherosclerosis. *Nat Med*. 2013;19:576–585.

Goraya N, Simoni J, Jo C, et al. Dietary acid reduction with fruits and vegetables or sodium bicarbonate improves kidney injury in patients with hypertensive nephropathy. *Kidney Int*. 2014;86(5):1087-1094.

He FJ, MacGregor GA. Salt reduction lowers cardiovascular risk: meta-analysis of outcome trials. *Lancet*. 2011;378(9789):380-382.

Kalantar-Zadeh K, Kramer HM. Consumption of artificial sweeteners and kidney disease. *Curr Opin Nephrol Hypertens*. 2018;27(5):403-408.

Barnard ND, Scialli AR, Turner-McGrievy G. The effects of a low-fat, plant-based dietary intervention on body weight, metabolism, and insulin sensitivity. *Am J Med.* 2005;118(9):991-997.

Krishnamurthy VM, Wei G, Baird BC, et al. High dietary fiber intake is associated with decreased inflammation and all-cause mortality in patients with chronic kidney disease. *Kidney Int.* 2012;81(3):300-6.

Koppe L, Mafra D, Fouque D. Probiotics and chronic kidney disease. *Kidney Int.* 2015;88(5):958-966.

Sidhu SRK, Kok CW, Kunasegaran T, Ramadas A. Effect of Plant-Based Diets on Gut Microbiota: A Systematic Review of Interventional Studies. *Nutrients.* 2023;15(6):1510