

The Importance of Sodium Restrictions in Chronic Kidney Disease



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DIETARY SODIUM RESTRICTIONS for chronic kidney disease (CKD) have become common practice, but the importance of the limitation can often times be overlooked. In CKD, the kidneys inability to excrete sodium is a major cause of hypertension (HTN) and can lead to progression of the disease.¹ Diuretic therapy has become the main treatment for HTN, but research has demonstrated that sodium restrictions can actually increase the effectiveness of these drugs. Excess sodium with CKD has been shown to also increase proteinuria, kidney blood flow and prevents antihypertensive agents from working properly.¹ Although sodium restrictions are frequently recommended by practitioners, adherence to the restriction is variable.

The current recommendation for patients with CKD is limiting sodium intake to 2000 mg a day.² Humalda et al.² identified numerous benefits to following a sodium-restricted diet including improved blood pressure (BP) and reduced proteinuria. High sodium intake has been seen to blunt the effects of medications commonly used to treat HTN in CKD, and even a moderate decrease in sodium has been shown to help reverse these effects.² Restrictions of sodium are seen more effective with HTN control in place of additional medications.² When cooking, roughly 15% of the salt consumed comes from added salt. The remaining 85% comes from hidden sources in the form of preservatives, canned products, condiments, sweets, deli meats, cured meats, baked products, cheeses, and other processed food items. The researchers summarize that current methods for encouraging sodium restrictions are not working and that behavioral approaches might

prove to be more effective with this chronic disease population.²

A study done on patients undergoing hemodialysis was divided into two groups for a 16-week trial. The first group consisted of 21 patients who were given a sodium restriction of 2000 mg. The second group served as the control and did not alter their normal diet.³ This study was conducted to evaluate the effect sodium has on total body water, BP, and the inflammatory markers of C-reactive protein, tumor necrosis factor, and interleukin 6. Researchers found that sodium restriction reduced the inflammatory response and can therefore improve prognosis in patients undergoing hemodialysis. No significant effects were noted with BP and extracellular fluid change in either group during the course of the study.³

The LowSALT study by Campbell et al.,⁴ is a randomized, crossover study looking at the impact of a low sodium (<2300 mg/day) and high sodium (>5000 mg/day) diet on BP, inflammatory markers, kidney function, and volume markers in 20 hypertensive Stage 3–4 CKD patients. The study found a positive impact on BP, kidney function, and volume markers with less dietary sodium. High sodium intake resulted in increased glomerular filtration rate and urine output, which was thought to be a result of hyperfiltration causing damage to the kidney. This also resulted in an increase in the extracellular/intracellular fluid ratio, proving a correlation with high sodium intake and fluid retention.⁴ Researchers note trial length as a barrier with the LowSALT study and suggest longer studies are needed to strengthen the results.⁴

A study published in 2017 by Meuleman et al.⁵ looked into patient barriers when following a sodium restriction, as well as why adherence rates to a sodium restriction are so low. Of 156 patients with CKD, the most significant barriers to restricting sodium intake were the high levels of sodium in food products, absence of CKD-related symptoms related to diet, and lack of strategies, goal setting, and education with a professional. Study conclusions identified the importance of addressing these barriers with patients to improve adherence to sodium restrictions.⁵

The following handout was designed to provide a basic education piece to be used with CKD patients. Outlined within the handout is a sodium restriction explanation, tips for success with the low sodium diet, label reading

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advice, examples of high and low sodium choices, and salt-free cooking ideas. It is important to emphasize restricting sodium intake to 2000 mg a day with CKD patients. With increased education and dietary adherence, patients suffering from CKD can delay disease progression and improve symptoms leading to a better quality of life.

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Sodium Restrictions and CKD



What is a Sodium Restriction?

Sodium restriction is limiting your daily sodium intake. To give you an idea of the amount of 2000 mg of sodium, a teaspoon of salt has about 2300 mg of sodium.

Why Restrict Sodium?

It is important to restrict sodium intake when you have chronic kidney disease (CKD) to slow disease progression. Limiting sodium helps lower your blood pressure which means less stress on your kidneys. Other benefits of restricting sodium include reducing protein loss, improved ability of medications to work and less fluid retention.

Tips For Reducing Sodium!

- **Stop adding salt while cooking and at the table.**
- **Try sodium-free spices to add flavor to your food.**
- **Read labels. Identify the sodium content of 5 foods in your pantry.**
 - **How much sodium do you usually eat?**
- **Look for products that are reduced or low sodium.**
- **Avoid purchasing foods that replace sodium chloride with potassium chloride with CKD.**
- **Be careful when eating out. Ask for dressing and sauces on the side. Request nutrition information when available.**
- **Use an app to keep track of your sodium intake.**
 - **Examples: MyFitnessPal™, MyPlate Super Tracker™, Calorie King™**
- **Ask for help! Achieving 2000 mg of sodium a day can be a hard adjustment.**
- **Start slow with achievable goals. Let your taste buds adjust.**

Nutrition Facts	
Serving Size 1/2 cup (115g)	
Servings Per Container About 4	
Amount Per Serving	
Calories 250	Calories from Fat 130
% Daily Value*	
Total Fat 14g	22%
Saturated Fat 9g	45%
Cholesterol 55mg	18%
Sodium 75mg	3%
Total Carbohydrate 26g	9%
Dietary Fiber 0g	0%
Sugars 26g	
Protein 4g	
Vitamin A 10%	Vitamin C 0%
Calcium 10%	Iron 0%
* Percent Daily Values are based on a 2,000 calorie diet.	

Make sure you look at the serving size. The package may contain more than 1 serving.

Choose foods with 140 mg or less of sodium if possible. Food items with 300 mg or more of sodium may not fit into the diet.



Look for labels that say:



- Salt free < 5 mg sodium
- Very low sodium < 35 mg sodium
- Low sodium < 140 mg sodium
- Unsalted-check the label



Low Sodium Recipes

- Baked chicken with lemon juice, sage, and garlic powder
- Cilantro and cumin, with pork and rice
- Salmon and basil
- Beef with bay leaf
- Rosemary and thyme with pork and potatoes

Other salt free flavoring ideas to use include: chili powder, dill weed, sage, tarragon, curry powder, ginger, chives, garlic, and onion.