Feature Editor: Stacey Phillips, MS, RD

Snacks for the Patient With Chronic Kidney Disease

Stacey Phillips, MS, RD,† and Sara Flanders, BS⋆

Introduction

NUTRITION FOR THE patient with chronic kidney disease (CKD) can be complex. Research has shown that nutritional intake can play a significant role in disease progression and includes consideration of dietary sodium, protein, potassium, phosphorus, and calcium. Depending on the phase of CKD, individuals will have different nutrient needs and therefore medical nutrition therapy intervention should be individualized.[1] In the 2020 Kidney Disease Quality Initiative Outcomes Clinical Nutrition Guidelines for CKD, the role of the registered dietitian nutritionist with diet individualization was specifically highlighted. Guideline 2 recommends the need of medical nutrition therapy by a registered dietitian nutritionist or international equivalent to optimize nutritional status and minimize risk for CKD progression. In addition, this same guideline recommends that provision of medical nutrition therapy should be based on patient needs, nutritional status, and other comorbidities.[1] When providing nutritional care, it is important to first understand nutrient recommendations for the renal diet and barriers to oral intake. The following article and handout address these concerns by providing an education tool for use with patients with CKD stage 3-5D.

Nutrition and Diet

Previous Kidney Disease Quality Initiative Outcomes nutrition recommendations were published in the year 2000, and since then, research has greatly advanced and changed many of the former guidelines. While older nutrition guidelines indicated a certain goal amount of each nutrient, newer recommendations are slightly different and suggest the following for patients with CKD 3 to 5D:[1]

- Sodium – less than 2300 mg/day
- Protein – varies depending on the stage of CKD
- Potassium – individualized; adjust intake to maintain within the normal laboratory value
- Phosphorus – individualized; adjust intake to maintain within the normal laboratory value
- Calcium – aim to maintain a neutral calcium balance with adjustment of intake based on the stage of CKD, calcium source, and use of active vitamin D or calcimimetics

Understanding these nutritional goals and working with your patient to incorporate each nutrient into their plan for meals and snacks is necessary when counseling the patient with CKD . In addition, teaching patients how to read the nutrition facts label can help them to make more educated food choices. While sodium, protein, and calcium values can be found easily on the label, potassium has only been recently added and phosphorus is not a requirement. Encouraging your patient to read ingredient lists on food items can help to identify food additives that can be harmful with compromised kidney function.[2]

Nutrition Barriers

Beyond the numerous diet restrictions commonly associated with kidney disease, barriers also exist regarding consistent oral intake in the patient with CKD. Malnutrition in this patient population is well documented and can stem from numerous causes including intestinal dysbiosis, systemic inflammation, changes with metabolic needs, and accumulation of uremic byproducts.[3] As part of the nutrition assessment, the registered dietitian nutritionist needs to identify malnutrition risk and provide intervention with the goal of optimizing nutritional status. Three specific factors that can lead to poor nutrition status with this patient population include nonadherence owing to renal diet complexity, taste changes, and a knowledge deficit relating to grocery shopping or meal preparation.

A 2016 article by Beto et al.[4] looked to better understand patient barriers with integration of the renal diet and compliance. Authors acknowledged, which is consistent

⋆*Dietetic Intern, Mercy Health Saint Mary's, Grand Rapids, Michigan.*
†*Clinical Dietitian, Mercy Health Saint Mary's, Grand Rapids, Michigan.*
Financial Disclosure: The authors declare that they have no relevant financial interests.
Address correspondence to Sara Flanders, BS, Dietetic Intern, Mercy Health Saint Mary's, 200 Jefferson Ave SE, Grand Rapids, MI 49503. E-mail: flande33@msu.edu

1051-2276/$36.00
https://doi.org/10.1053/j.jrn.2021.05.001

SNACKS THAT SATISFY

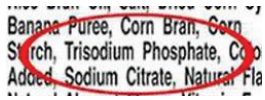
A Renal-Friendly Guide

POTASSIUM → Large nutrients that are tough for your kidneys to filter out!

PHOSPHORUS → Large nutrients that are tough for your kidneys to filter out!

PROTEIN → You need some, but not a lot!

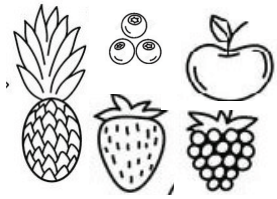
FLUIDS → Remember, salt makes you thirsty!

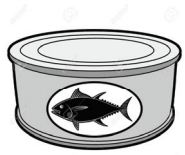


Food labels will help you find these nutrients, additives, and amounts!

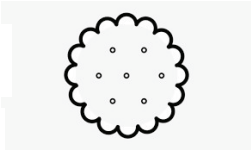
I'm so hungry. What can I eat *right now*?

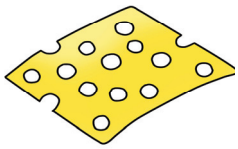
Finding the snack foods that work for you is important, so get creative and try things! Here are a few suggestions……

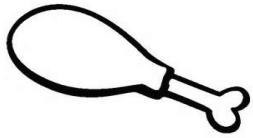


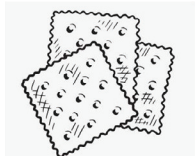


Air popped popcorn w/garlic powder, some fruits, jello, low sodium tuna salad w/crackers, wafer cookies, some varieties of cheese, chicken drum w/ balsamic vinegar









How much can I eat? Portion control is in your hands!

<u>It's important to control portion size too – use your hand for a guide!</u>

4oz = 1 serving of meat, like a chicken drum or ½ can of tuna = palm of your hand

1 c = popcorn, or 2 fruit servings = palm of your hand cupped like a baseball

1oz = cheese = finger for string cheese, 1 slice or 1 cube thumb-tip sized

Crackers and cookies are each – the food label will tell you how many!

https://www.kidneyfund.org/kidney-disease/chronic-kidney-disease-ckd/kidney-friendly-diet-for-ckd.html

https://www.kidney.org/news/keephealthy/newsletter/Spring2012/KH_15-Healthy-FastFoods#:~:text=Tuna%20is%20kidney%2Dfriendly%20and,pita%20for%20a%20delicious%20meal.

with the 2020 Kidney Disease Quality Initiative Outcomes guidelines, that there is not a single nutrition tool effective with all stages of CKD to help identify and treat these barriers. Rather, the most effective intervention techniques depended on the individual patient and could include use of technology, single rather than several goals, active learning and a nutrition plan that fit with the patient's lifestyle.[4]

As CKD progresses, taste changes can also occur with uremia and the gradual accumulation of waste products.[5] Foods that appeal to patients may change or taste differently. In a 2020 article, Marquez-Herrera et al.[5] validated taste in a control and dialysis group. They found that in patients with advanced kidney disease, taste misidentification was more likely. When considering taste as a barrier to oral intake, helping your patient identify food preferences or keeping a variety of kidney friendly food items available can help ensure adequate calorie and protein intake.

Socioeconomic barriers, including need of help grocery shopping and understanding cooking basics, can also impact nutrition status. In a study including 255 patients on stable hemodialysis, higher subjective global assessment scores, malnutrition inflammation scores, and body fat mass index were found in those patients who needed support with grocery shopping and meal preparation.[6] Convenience is often a contributor when a patient selects a food item. While processed foods can be significantly easier to prepare, many choices are often greater in sodium and food additives. Education on meals and quick snack choices, basic cooking classes, and provision of healthy meal options[6] can be beneficial with this patient population.

Nutrition Application

The following handout serves as quick reference for an individual with CKD stages 3-5D in need of snack ideas or food items to keep stocked at home for when they are short on time or hungry for an easy to grab choice. By providing a list of kidney-friendly recommendations, this tool can help the individual select a food item that is compliant with their diet and help curb their appetite.

References

1. Ikizler TA, Burrowes JD, Byham-Gray LD, et al. KDOQI Nutrition in CKD Guideline Work Group. KDOQI clinical practice guideline for nutrition in CKD: 2020 update. *Am J Kidney Dis.* 2020;76(suppl 1):S1-S107.

2. National Kidney Foundation. Your Guide to the New Food Label. Available at: https://www.kidney.org/atoz/content/foodlabel#:~:text=Potassium%20and%20phosphorus%20may%20be,are%20not%20in%20that%20food.

3. Zha Y, Qian Q. Protein nutrition and malnutrition in CKD and ESRD. *Nutrients.* 2017;9:208.

4. Beto JA, Schury KA, Bansal VK. Strategies to promote adherence to nutritional advice in patients with chronic kidney disease: a narrative review and commentary. *Int J Nephrol Renovasc Dis.* 2016;9:21-33.

5. Marquez-Herrera R, Nunez-Murillo G, Ruiz-Gurrola C, et al. Clinical taste perception test for patients with end-stage kidney disease on dialysis. *J Ren Nutr.* 2020;30:79-84.

6. Ekramzadeh M, Mazloom Z, Jafari P, Ayatollahi M, Sagheb M. Major barriers responsible for malnutrition in hemodialysis patients: Challenges to optimal nutrition. *Nephrourol Mon.* 2014;6:e23158.

Websites of Interest

1. American Kidney Fund. Kidney-friendly diet for CKD. Available at: https://www.kidneyfund.org/kidney-disease/chronic-kidney-disease-ckd/kidney-friendly-diet-for-ckd.html.

2. National Kidney Foundation. KEEP healthy. Available at: https://www.kidney.org/news/keephealthy/newsletter/Spring2012/KH_15-Healthy-FastFoods#:~:text=Tuna%20is%20kidney%2Dfriendly%20and,pita%20for%20a%20delicious%20meal.

3. Davita kidney care: snacks for a kidney diet. Available at: https://www.davita.com/diet-nutrition/articles/advice/snacks-for-a-kidney-diet.