

What to Know About Kidney Transplant Nutrition



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THE NUMBER OF people with chronic kidney disease (CKD) is expected to rise each decade, and in 2021, the number of Americans with CKD rose to an estimated 37 million.^{1,2} There are now 93,000 people awaiting a kidney transplant in 2022.^{1,2} The kidney transplant waitlist remains the largest of all organ transplants. With only 252 transplant centers in the United States and a low number of living donors, only 22,800 – 23,000 people receive a kidney transplant annually.^{1,2} The United Network for Organ Sharing reports that 1 out of every 20 people with end-stage kidney failure will die while waiting for a kidney transplant.³ Recent changes in United States (U.S.) policies on treating kidney disease have yielded an increase of 16% of patients receiving a kidney transplant.³ The impact of end-stage kidney disease on our nation and on an individual's life is grave and costly. The options to treat kidney failure including dialysis or transplant are well known, yet the list of living donors remains sorely inadequate.

For people with CKD considering transplant as an option to treat kidney failure, knowledge of pretransplant nutrition, management of comorbid diseases, and improvement of physical health are key to successful transplant outcomes. People with CKD are required to see a renal dietitian for pretransplant nutrition evaluation. There are several assessment categories addressed by renal dietitians in the transplant evaluation. The most significant of these categories are assessment of diet knowledge and medication adherence, control of diabetes, weight management, pre-treatment of malnutrition, and physical capability.⁴

A kidney diet assists patients in managing vital nutrients that may affect mortality, namely potassium, phosphorus, and fluid balance. While some people with CKD can maintain normal blood levels of potassium and phosphorus through diet and dialysis, many require the use of mineral-binding medications. Maintaining normal blood

levels of potassium and phosphorus is linked to improved cardiovascular health, before and after a kidney transplant.⁵

For people with CKD, the knowledge of potential adverse reactions from commonly used transplant medications is crucial. The immunosuppressive medications classified as calcineurin inhibitors (cyclosporine and tacrolimus) commonly increase potassium levels and may decrease phosphorus levels. The posttransplant diet may include adjustments to potassium, phosphorus, and other minerals.⁶ The transplant dietitian will ensure these labs are monitored and addressed.

Diabetes and hypertension remain the two leading causes of CKD and kidney failure, and control of both comorbidities before and after the transplant is crucial for the survival of the new kidney. The use of immunosuppressants may lead to hypertension any time after the transplant.¹² The use of corticosteroids after the transplant creates an added risk of hyperglycemia and may lead to the diagnosis of new-onset diabetes after the transplant.⁷ Similarly, studies show that hemoglobin A1C levels higher than 8% have been related to an increase in poor kidney allograft outcomes.⁸

Identifying malnutrition in people with CKD is key to decreasing the potential risks associated with transplant, such as infection, slow recovery of the transplanted kidney, and mortality risk.⁴ The use of a nutrition-focused physical examination has become more widespread in identifying loss of lean muscle and fat and in the diagnosis of malnutrition.⁴ Body mass index (BMI) is also used as an indicator of health status in the CKD population.⁴ A low BMI of <18.5 is linked to undernutrition; however, the use of the nutrition-focused physical examination may help determine if malnutrition is present in patients with BMI < 18.5.⁴ Nutritional counseling and the use of nutrition supplements for weight repletion are common interventions for patients with malnutrition.⁴

A healthy BMI of 30–35 has long been accepted in people with end-stage kidney disease and on dialysis. A BMI of less than 35 does show benefits in limited studies, primarily a decrease in allograft failure and a decreased risk of new-onset diabetes after transplantation.⁹ Transplant centers in the U.S. have center-specific criteria for BMI, and there is no standard BMI guideline for a kidney transplant. Interventions for weight control in patients who are obese (BMI > 40) include diet counseling, encouragement of

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Kidney transplant: What to know about kidney transplant nutrition.

Intended audience: patients with chronic kidney disease stage 4 and stage 5, patients on dialysis, renal dietitians, and kidney dietitians.

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physical activity, exercise goals, and, infrequently, the use of bariatric surgery to meet BMI criteria.¹⁰

For people with CKD, pretransplant and posttransplant nutrition and health goals share common characteristics, such as normal blood potassium and phosphorus levels, blood sugar control, weight control, normal blood pressure levels, and adequate physical activity.^{8-10,12} The attached handout is a general overview of the common nutrition guidelines used for CKD patients on the road to kidney transplantation.

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TRANSPLANT NUTRITION

Know Your Health Goals

"WHAT CAN I FOCUS ON FOR A SUCCESSFUL TRANSPLANT?"

Keep these in goal range:

- Potassium
- Phosphorus
- A1C: 7.5-8.5%
- Blood Pressure: less than 140/90
- Weight /BMI: 32-40



"WHAT CAN I DO TO MAKE MY HEALTH A PRIORITY?"

- Work with your team to set small goals
- Come to all of your appointments



"HOW CAN I INCLUDE HEALTHY FOODS IN MY DAILY MEAL PLAN?"

- Your dietitian will guide you on which foods to choose based on your individual lab and health goals
- Enjoy foods that are minimally processed and have less phosphorus and potassium additives.
- Make your plate kidney smart by filling 1/2 with a mix of fruits and vegetables, 1/4 with a protein-rich food, and 1/4 with a high fiber grain or starchy vegetable.

“WHAT IS ONE THING I CAN DO TO HELP REMEMBER TO TAKE MEDICATIONS?”

- TIPS:
 - set alarms or alerts on your phone
 - Enlist family for help
 - Put medications near your eating area
- *Your doctor and transplant team will help oversee medications, so your transplanted kidney will not fail.*



Remember to stay active

Exercise helps you:

- Maintain weight
- Manage blood sugar levels
- Manage blood pressure

Managing Your A1C

- Talk to your doctor or transplant team about your A1C goal.
- Talk to your dietitian about how to manage blood sugar levels.

Managing Your BP

- Blood pressure control is necessary to keep your kidney healthy.
- When kidneys fail, fluid starts building up in the body, this can increase blood pressure.
 - *You can help maintain good blood pressure control with a low salt diet .*