

## **STAGE 4**

When you have stage 4 chronic kidney disease (CKD), your diet goals should help minimize symptoms and help you maintain adequate nutrient intake to prevent weight loss and malnutrition. Kidney function is severely decreased in stage 4 CKD. Protein waste, toxins and minerals build up in the body and lead to uremia with symptoms such as nausea, vomiting, loss of appetite, abnormal taste, bad breath, nerve and sleep problems, difficulty concentrating and fatigue. Fluid retention due to a decrease in urine output may also occur. Knowing your nutritional goals can help you have a better quality of life.

### **Protein and stage 4 CKD**

On average, Americans consume 90 to 100 grams of protein a day, but our bodies only need about 46 (for women) to 56 grams (for men) of protein.

The Kidney Disease Outcome Quality Initiatives (K/DOQI) Nutrition Guidelines suggest that a protein intake of 0.6 grams per kg of body weight may be beneficial when glomerular filtration rate (GFR) drops below 25, or approximately 25 percent remaining kidney function. Half of your protein should come from high-quality sources that provide all the essential amino acids (e.g., eggs, milk, poultry, seafood, red meats, soy).

This lower-protein diet is thought to have a protective effect on the kidneys. However, it also brings the risk of protein malnutrition, with muscle wasting and low albumin levels. Ask your nephrologist or renal dietitian to calculate how much protein you should consume per day.

### **Phosphorus and stage 4 CKD**

As kidney function decreases, phosphorus isn't removed from your body efficiently and can build up in the blood. At the same time, calcium is not absorbed well from your food, leading to low blood levels. In response, parathyroid hormone (PTH) production increase and causes a release of calcium and phosphorus from your bones. The loss of calcium and phosphorus from your bones causes bones to weaken and the increase of phosphorus and calcium in your body can cause calcifications in your heart, blood vessels and other soft tissues within your body. Based on your lab results for phosphorus, calcium and PTH, your stage 4 CKD diet may include a phosphorus restriction of 800-1,000 mg daily.

Check food ingredient lists for any type of phosphorus additive (phosphoric acid, hexametaphosphate, triphosphate, etc.). Many beverages and processed foods have these additives.

Other high-phosphorus foods to limit include:

Cheese Chocolate

Ice cream Legumes

Milk Nuts

Seeds Yogurt

### **Potassium and stage 4 CKD**

If kidneys aren't able to remove enough potassium to maintain normal blood levels in stage 4 CKD, you will need to limit high-potassium foods. Your doctor may prescribe a potassium restriction of 2,000 to 3,000 mg a day. Some high-potassium foods to limit or avoid include:

Avocado Bananas

Cantaloupe and honeydew melon Dried fruit

Legumes Milk

Nuts and seeds Oranges and orange juice

Potatoes Pumpkin and winter squash

Tomato products (juices, sauces, paste) Yogurt

A high potassium level may also be related to angiotensin converting enzyme (ACE) inhibitors or angiotensin receptor blockers (ARBs) prescribed to reduce protein in the urine, potassium-sparing diuretics or other blood pressure management medications and your doctor may make medication changes.

### **Sodium and stage 4 CKD**

Most kidney diets start with a goal of 1,500 to 2,000 mg per day or the amount recommended by your doctor or dietitian. The sodium recommendation for stage 4 CKD is 1,000-4,000 mg/day based on fluid balance, blood pressure and other diseases that may affect sodium requirements. The average American consumes 3,700 mg of sodium a day.

### **Calories and stage 4 CKD**

When you make changes in your diet, your calorie intake may decrease, resulting in undesirable weight loss. Decreasing your protein intake alone can result in 200 to 400 fewer calories a day. Weigh yourself and track your weight

weekly to see if you need more calories. Ask your dietitian to help with setting realistic weight goals depending on your current weight.

#### Fluid and stage 4 CKD

If you start to retain fluid in stage 4 CKD, you may need to limit the amount of liquids you consume. Signs of fluid retention include swelling in the feet, hands and face; sudden weight gain; shortness of breath; and high blood pressure. These symptoms may indicate decreased urine output as kidney function declines.