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Nutrition - Diet - chronic kidney disease

Definition:

This diet is used in the people with abnormal kidney [renal](#) function to prevent progression of renal disease. It is usually low in protein and may be low-sodium, and low-potassium. It may also involve fluid restriction. In diabetic patients with renal disease, a low carbohydrate diet may also be used.

Alternative Names:

Renal disease - diet; Kidney disease - diet

Food Sources:

This diet controls the amount of [protein](#), sodium, and potassium. The controlled amounts of each of these nutrients are based on the person's blood levels of potassium, sodium, and urea, as well as the fluid balance, [creatinine clearance](#), and [blood pressure](#).

If the blood levels indicate the need to adjust the intake of calcium and phosphorus, then the amounts allowed in the diet are changed. Fluid is only restricted in patients who accumulate excessive volume.

Functions:

The purpose of a diet that restricts [protein](#) is to decrease the protein load on the kidney and slow down progression of renal disease. Sodium may be restricted to improve blood pressure control and to avoid fluid accumulation. Potassium is restricted because if it is not excreted effectively, it can accumulate and result in dangerous heart rhythms.

Recommendations:

The amount of [protein](#) allowed in the diet is determined by checking the amount of protein (and protein waste byproducts) in the person's blood. The suggested amount of protein in a low protein diet is 0.6g/kg/day.

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In patients who are losing large amounts of protein in their urine in diseases (such as nephrotic syndrome), the kidney specialist will recommend a moderate protein restriction of 0.8g/kg/day.

Laboratory tests may include [chem-20](#), [creatinine](#), [albumin](#), and [blood urea nitrogen](#). Low-protein diets may prevent or slow the progress of some kinds of [kidney disease](#). The amount of protein the person can eat is based on how well the kidneys are functioning and the amount of protein needed to maintain good health.

Sodium content in the diet is also controlled. This helps avoid fluid retention. Reduced amounts of sodium in the diet also helps control [high blood pressure](#) and [congestive heart failure](#).

The daily intake of potassium is also a concern. Controlling it helps prevent [hypokalemia](#) (a low level of potassium, rarely a problem for people with [renal disease](#)) as well as [hyperkalemia](#) (a high level of potassium, a common problem for people with renal disease).

The mineral phosphorus is often controlled as well. When the amount of phosphorus is decreased by the reduced intake of dairy products and other foods high in phosphorus, there is a need to provide calcium supplements to prevent [bone disease](#).

The amount of phosphorus in the diet is controlled by the use of phosphorus binders (medications that bind the phosphorus in the food and make them unavailable to the body). Vitamin D supplements may also be provided to help control the calcium and phosphorus balance in the body.

During [renal failure](#), the amount of urine the body produces may be decreased. The recommended daily amount of fluid is based on the amount of urine produced in a 24-hour period. Other considerations are the amount of fluid retention present, the level of dietary sodium, the use of diuretics, and the presence or absence of congestive heart failure.

People with renal disease are more prone to [cardiovascular](#) (heart) disease, so a diet with most of the calories from [complex carbohydrates](#) is recommended. Calories from [fats](#) should be from monounsaturated and polyunsaturated fats.

The daily calorie intake needs to be adequate to maintain the person's nutritional status at an optimal level and to prevent the breakdown of body tissue. The person's weight and protein status should be monitored regularly, even daily.

Vitamin supplementation is very individualized. It is dependent on the various dietary restrictions and the extent of renal failure. The requirements for the fat-soluble vitamins (A, D, E, and K) are usually met by the diet. [Vitamin D](#) may need to be supplemented -- this is an individual medical decision. The intake of water-soluble vitamins is usually adequate until a patient begins dialysis.

The minerals that are also monitored include calcium, iron, and magnesium. The recommended supplementation of daily calcium is 1,000 to 1,500 milligrams per day. Iron supplementation is based on the person's need.

Magnesium supplementation is NOT recommended, as it can cause an increase in the magnesium levels in a person with renal disease. Iron is usually supplemented as most patients with advanced renal failure also have severe anemia.

Note: Not all people with kidney disease need dietary supplements.

Side Effects:

A low-protein diet can be deficient in some of the essential [amino acids](#), the vitamins [niacin](#), [thiamine](#), and riboflavin, and the minerals phosphorus, calcium, and iron. In advanced renal failure, it can lead to malnutrition and should only be implemented under the guidance of a kidney specialist.

Benefits of implementation:

This special diet is very helpful as a decreased protein load decreases the stress on the kidney. Nonadherence can increase progression of chronic kidney disease.

Support groups:

The Kidney Foundation has chapters in most states and is an excellent resource for educational and materials, programs for people with renal disease and their families.

The kidney specialist should refer you to a registered dietitian who is a good resource for nutrition information specific to [kidney disease](#) -- some are specialists in [renal](#) diets.

Disclaimer:

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