# Nutrition and the Kidneys:
# The Predialysis Diet for Early Stage Kidney Disease

*As the ninth leading cause of death, chronic kidney disease affects many Americans and their families. Over 20 million Americans are affected by kidney and urinary tract diseases, with more than 370,000 Americans being treated with dialysis or receiving kidney transplants each year. Over 50,000 Americans die because of kidney disease every year. Organizations like the National Kidney Foundation and American Dietetic Association strive to decrease the prevalence and severity of kidney diseases through research, education and improved treatment.*

**What is Kidney Disease?**
Kidney disease is a progressive condition, that can vary from mild to severe, to complete kidney failure. If the kidneys were to lose all function, toxins would remain in the blood, chemical imbalances would cause the heart and other organs to dysfunction, fluid would build up in the blood leading to increased blood pressure and heart problems - and the result would be fatal. This is why treatment – which includes medications, diet and other elements – is so important at all stages of kidney disease.

**What is a renal diet?**
Dietary intervention is essential in individuals with kidney diseases and the nutritional recommendations vary depending on the each patient's stage of progression, cause of disease, other treatment methods, and medications.

A renal diet is one that has been carefully designed to help an individual with kidney disease reduce unfavorable symptoms and hopefully slow the progression of the disease. When a kidney becomes diseased, it may lose all or only part of its ability to function properly. The goal of the renal diet is to help maximize the remaining ability of the kidneys to filter and excrete toxins in the blood, without overworking them too much.

**How is Kidney Disease Treated?**
Every individual with kidney disease is unique, and treatment is very individualized based on the cause, stage of progression, other coexisting health conditions, and medications. Some individuals in earlier stages of kidney disease can manage their condition with diet, exercise, and medications. A *predialysis renal diet* is prescribed to individuals who have reduced, but not yet more than 50% loss of kidney function. Many researchers have shown that kidney functions can be improved or reversed through nutritional therapy at earlier stages of kidney failure.

When over 50% of the kidney's function has been lost, progression to ESRD or complete kidney failure will eventually occur in most individuals. A *predialysis renal diet* can still help slow the decline and plays an important role in keeping adverse symptoms to a minimum.

Once 90% of the kidneys' ability to function is gone, however, treatment options turn to either regular dialysis (through an artificial kidney machine) or eventual kidney transplant. With dialysis, different nutritional recommendations are important and a *renal diet for patients on dialysis* is prescribed. The reason behind two distinct diets and set of nutritional factors depending on the stage of lost renal function is because when a patient is being dialyzed, he or she is actually getting "help" from a machine or solution to filter out the toxins that accumulate in the blood. When a person is not on dialysis, he or she must rely on the remaining (reduced) function of the kidney in filtering the blood and excreting the excesses.

**The Predialysis Renal Diet – Early Stages of Kidney Disease**

A specialized diet can aid in controlling the buildup of waste products and fluid in the blood and minimize the work of declining kidneys. The main focus of the diet is to keep the patient as healthy as possible. A renal physician (nephrologist) will often refer the patient to a Registered Dietitian who is specialized in kidneys disease (renal dietitian) with a recommendation for the type of diet to initiate. Each patient requires a specialized diet according to his or her unique medical condition and should see a health care professional for specific guidelines.

The main nutrients of concern in the early stages of kidney disease are protein, phosphorus, and sodium (if necessary). Total calories are also monitored to make sure that a person with kidney disease maintains a healthy weight.

**Protein**

Protein is an important nutrient for growth, building muscle and repairing tissues. When protein is digested, nitrogen products like urea and ammonia are formed. Normally, the kidney filters and excretes these waste products in the urine. However, with a kidney that has reduced function, it may not be able to work as efficiently to rid the blood of these products. A buildup of urea and ammonia can be toxic and lead to problems. Protein restriction (while not *always* advised) is a major, and usually the first, dietary recommendation in the early stages of kidney disease. Since protein is essential in the diet, however, it is important to still obtain enough for good health through high quality proteins like those found in meats and eggs. The general recommendation for persons with early stages of kidney disease is 0.3 to 0.4 grams of protein per pound of body weight per day.

**Phosphorus**

When kidney function declines, they are not able to remove excess **phosphorus** from the blood. Too much phosphorus can cause calcium to be pulled from the bones, weakening the bones and increasing the risk of fractures. Therefore,

phosphorus intake may also need restriction. Phosphorus is found in high levels in milk and milk produces; most meats and seafood; whole grains, nuts, and seeds; certain beverages like beer, dark colas, and cocoa; some vegetables; and chocolate. Foods high in protein are also generally high in phosphorus, which often leads to restriction of both.

**Sodium**

A restriction of **sodium** is sometimes, but not always, advised. A healthy kidney can reabsorb about 99% of the sodium filtered by the kidney and tightly controlling fluid levels in the blood – or blood pressure. The body is quite adept at adapting to variations of sodium intake in the diet from day-to-day, so restriction is not always necessary. The goal is to establish a level of sodium intake that avoids too much (high blood pressure) or too little (low blood pressure) fluid accumulation in the blood. Either extreme can lead to health problems.

**Calories and Overall Diet**

Finally, calories are monitored because dietary restrictions can lead to undesirable weight loss. Too much weight loss can result in malnutrition and illness. Because the protein content is usually reduced in a predialysis (early stage) renal diet, calories may need to be replaced by other nutrients like carbohydrates and healthy fats. A Registered Dietitian specialized in kidney diseases can help determine the right caloric levels to maintain a healthy weight, while incorporating the necessary changes to help preserve kidney function.

Beside these modifications to the diet, the rest of the diet should follow the recommendations of the *USDA Food Guide Pyramid* and *Dietary Guidelines for Americans 2000* to ensure optimal nutrition and servings from each of the food groups on a regular basis. Sometimes the renal dietitian may recommend vitamin and mineral supplementation if meeting nutrient needs become difficult due to dietary restrictions.

**Adapting to a Predialysis/Early Stage Renal Diet**

Following a specialized renal diet in the early stages of kidney disease generally takes some time to adjust to and can be quite challenging. However, people who learn to tightly monitor their intake and follow the guidelines given to them by their nephrologist and renal dietitian have been able to slow the progression of the disease- and in some cases, even reverse it.

Significant research is being conducted and increasing information is available for the millions of Americans with kidney and urinary tract problems today. Working with an integrated team that includes a nephrologist, renal dietitian and other health care experts can be the first step in designing a course of treatment that best suits each person's individual needs for managing his or her kidney disease.

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