

# The KidneyKorner<sup>®</sup>

for people on dialysis from the makers of *Nepro*<sup>®</sup> with Carb Steady<sup>®</sup>

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A woman in a white lab coat is smiling and serving a plate of food to a patient. The patient's back is to the camera. The setting appears to be a hospital kitchen or cafeteria.

# The Power of Protein

You hear a lot about protein these days – on food labels, in the news, and even from our every day conversations. You know that protein is important, but do you know why protein is important? Or even what it does in the body? And why it is an important issue for people with chronic kidney disease (CKD)?

## What is Protein?

Protein is a long chain of amino acids linked together. Proteins have different functions; they can provide structure (ligaments, fingernails, hair), help in digestion (stomach enzymes), and aid in movement (muscles). The most important function of protein is to build up, keep up, and replace the tissues in your body. Your muscles, your organs, and some of your hormones are made up mostly of protein.

Proteins are composed of small units. These units are the amino acids which are called the building blocks of protein. There are about 20 different amino acids which are commonly known. These include essential and non-essential amino acids. Essential amino acids are those the body cannot make and therefore must be



provided in the diet, whereas non-essential amino acids can be made by the body.

The protein quality of a food is determined by its amino acid composition. Foods that contain all essential amino acids in adequate amounts are considered complete or high-quality proteins. Complete proteins typically come from animal sources (e.g. eggs, milk, meat, poultry and fish) and foods made from soy (e.g. tofu and tempeh). Most plant proteins (e.g. legumes and nuts) are incomplete proteins because they do not contain all the essential amino acids.



## What Does Protein Do in the Body?

Interestingly, 75% of the human body is made of protein. As a nutrient, protein performs many functions in the body. The body breaks down the long chains of amino acids in proteins into single amino acids. The body's cells then use these amino acids to make new proteins. Specifically, proteins are used by the body to:

- Build, maintain and repair body tissues
- Maintain the body's structural components like skin, muscles, bones, teeth, and organs
- Make hormones and enzymes that function to regulate body processes
- Make antibodies to help fight disease and illness
- Maintain fluid balance

## Why is Protein Important For People on Dialysis?

When protein is eaten, the body breaks it down into separate amino acids and then uses those amino acids for various functions in the body. As a result of this process, waste products are produced. These waste products must be discarded by the body, a process which is normally done by the kidneys.

Each kidney contains approximately 1 million functioning units called nephrons. In healthy kidneys, the nephrons work to filter these waste products and remove them from the body in the form of urine. However, unhealthy kidneys lose the ability to remove protein wastes.

For people with stage 5 CKD, dialysis treatments help to perform this function of the kidneys and remove waste from the blood.

Protein intake is especially important for people on dialysis. Through the normal process of dialysis, some protein is removed along with other nutrients. Approximately 10 to 12 grams of amino acids are lost during each dialysis treatment. Therefore, your diet must supply protein to replace the amount lost during dialysis. A higher protein intake is needed during dialysis to help keep you healthy, provide your body with

"There is present in plants and in animals, a substance which... is without doubt the most important of all the known substances in living matter, and without it, life would be impossible on our planet. This material has been named protein."

Gerard Johannes Mulder  
1838

the protein it needs to perform its normal functions as well as to replace the protein lost during dialysis.

## How Much Protein Do I Need?

The amount of protein you will need depends on your stage of CKD, treatment, body size and other health concerns. People on dialysis actually need more protein in their diets than the general population. Protein recommendations are designed to compensate for the protein loss during dialysis treatments.

The current protein recommendations from the National Kidney Foundation (NKF) are 1.2 grams of protein per kilogram (kg) of body weight per day with at least 50% of the dietary protein as high biological value proteins, such as meats, poultry, fish, eggs, soy and dairy products. So, for a 176 pound (80 kg) (1 pound = 2.2 kg) man on dialysis, his protein needs would be approximately 96 grams per day.

While this might not seem like a lot of protein, it is actually a struggle for many people to eat enough protein each day. Often times, it is difficult to consume this high level of protein due to food restrictions, lack of appetite, and taste alterations. Dietary protein intake is often low in hemodialysis patients, with approximately half of people eating less than the recommended quantity of protein per day.

# How Can I Meet My Protein Needs?

Unfortunately it is not as easy as just adding more protein-rich foods to your diet. Many foods that are high in protein are also high in fat, cholesterol, and phosphorus – nutrients you may also need to watch in your diet. So increasing your protein intake is really about finding the right balance of protein-rich foods that best meet your overall nutritional needs.

High protein foods like red meat and regular milk are also high in fat and cholesterol. The key is choosing protein-rich foods that are also heart healthy. Good choices include fish, chicken breast, lean red meat, low cholesterol egg substitutes or egg whites, low fat soy products and low fat dairy products.

However, certain protein-rich foods may also be high in phosphorus, an essential mineral that builds up in the blood with chronic kidney disease. Foods that are high in protein and phosphorus that may be of concern are milk, yogurt, cheese, dried beans and peas, nuts and seeds, peanut butter, and some soy products.

## Good Choices

Lean beef

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Fish, shellfish (shrimp, lobster)

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Poultry

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Pork

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Lamb

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Veal

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Wild game (deer, rabbit)

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Eggs, egg whites,  
egg substitutes

## Poor Choices

Bacon, sausage, hotdogs,  
bologna, salami

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Canned tuna, canned salmon

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Cooked, dried beans and peas

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Milk and yogurt

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Organ meats (liver)

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Cheese

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Tofu

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Nut butters (peanut butter,  
almond butter)

See the chart on this page for some poor protein choices to limit and some good protein choices to choose more often.

Protein is an essential nutrient that performs many important roles in your body. A high protein intake is especially important for people on dialysis to help keep you healthy and to replace protein losses during dialysis. The key is to work with your healthcare team to find the right balance of protein-rich foods within your meal plan to meet your increased needs. And that is the power of protein!



**As always, work with your renal dietitian to determine the right protein intake for you as well as the best protein choices for your meal plan.**

# Renal nutrition for real life



Between your activities, family and dialysis, sometimes eating right gets lost in the shuffle. But proper nutrition is especially important when you're on dialysis. That's why there's Nepro® with Carb Steady®.

Unlike general nutritional products, Nepro with Carb Steady is designed specially for renal diets. High in protein and calories, yet low in potassium, phosphorus and sodium. Ask your health care professional if Nepro with Carb Steady is right for you.

- Carb Steady carbohydrate blend contains ingredients clinically shown to help manage blood glucose levels

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## WORD SEARCH

PROTEIN	BODY	LEAN BEEF	PORK
AMINO ACIDS	KIDNEY	FISH	LAMB
SKIN	NEPHRONS	GINGER	VEAL
MUSCLES	HEALTHY	POULTRY	EGGS

B A E N Y E G G S P  
M U S C L E S S A L  
A L F E E B N A E L  
L E P I Y B O D K O  
A P O R S D R D I S  
E L R S O H H T Y K  
V D K I N T P E V I  
C Y H T L A E H K N  
S D I C A O N I M A  
P O U L T R Y E N R



Naturally and artificially flavored.  
Use under medical supervision.



## Morning Comfort Sandwich

### Nutrition Facts

Serving Size: 1 Sandwich  
Servings per Recipe: 10

#### Amount per Serving

Calories 330	Calories from Fat 150
Total Fat	17 g
Saturated Fat	4.5 g
Cholesterol	195 mg
Sodium	550 mg
Total Carbohydrate	30 g
Dietary Fiber	1 g
Sugars	2 g
Protein	15 g
Vitamin A	810 IU
Vitamin C	3 mg
Calcium	185 mg
Iron	2.5 mg
Phosphorus	250 mg
Potassium	175 mg

Use under medical supervision.

## Morning Comfort Sandwich

Servings: 10    Serving size: 1 Sandwich

### Ingredients:

Nonstick cooking spray	Parmesan cheese plus 2 tsp, divided
2 1/2 cups all-purpose flour	6 Tbsp margarine, cold cut into 1/2-inch pieces
1 Tbsp baking powder	1 cup (8 fl oz) Homemade Vanilla Nepro® with Carb Steady®
1/2 tsp baking soda	1 Tbsp fresh chopped parsley
1/2 tsp onion powder	10 eggs, poached, scrambled or basted
1/2 tsp Italian herb blend (no salt)	10 half slices (1/3 oz each) cheddar cheese
2 Tbsp grated reduced-fat	

### Directions

- Preheat the oven to 400°. Lightly mist a baking sheet pan with nonstick cooking spray.
- In a medium bowl, combine the flour, baking powder, baking soda, onion powder, Italian herb blend and 2 Tbsp Parmesan cheese. Add the margarine to the dry ingredients and blend until the mixture resembles coarse meal.
- Add the Nepro with Carb Steady to the flour mixture. Mix to form a soft dough. Lightly dust a working surface with flour and roll out the dough, about 1/2-inch thick. Using a 3-inch round cutter, cut out 10 disks (reshape the dough scraps to get a total of 10 biscuits). Transfer the disks to the prepared baking sheet.
- In a small bowl, combine the chopped parsley and 2 tsp Parmesan cheese. Brush the surface of each biscuit with water and sprinkle the top of each biscuit with a little of the parsley cheese blend. Bake 13 to 15 minutes.
- Transfer the biscuits to a wire rack. Split each warm biscuit to assemble the sandwiches. (After the biscuits have cooled, they may be individually wrapped and frozen up to 1 month for single servings).
- To assemble the sandwich, layer one cooked egg and 1/2 slice of cheese over the egg on top of each biscuit half. Place the top of the biscuit over each sandwich. Microwave the sandwich for 10 to 20 seconds to reheat and melt the cheese.

**Serves:** 10 • **Serving Size:** 1 Sandwich    **Exchanges:** 2 Starch, 1 Medium-Fat Meat, 2 Fat    **Carb Choices:** 2