

Kidney Disease and Phosphorus

What is phosphorus?

Phosphorus is a mineral found in many foods. Phosphorus helps keep your bones strong and healthy. As your kidney function declines, your blood phosphate level may rise, causing itchy skin, a loss of calcium from your bones, and painful bony deposits in your heart, skin, joints and blood vessels.

What is the recommended amount of phosphorus in blood?

This depends of how much of your kidneys are working:

- If you have lower kidney function and you are not having dialysis treatments, the range is 0.87 to 1.49 mmol/L.
- If you are having dialysis treatments, the range is 1.13 to 1.78 mmol/L.

How do I keep my phosphorus levels normal?

- You may need to limit the amount of phosphorus you eat.
- You may be prescribed a phosphorus binder medication.
- If you are on dialysis, making sure you get regular dialysis treatments as prescribed by your doctor.

What foods contain phosphorus?

Some foods naturally contain more phosphorus than others. Meat, poultry, and fish contain phosphorus, as well as good quality protein. Your dietitian will help you with the amount of protein that your body needs.

Refer to the food chart on the next few pages for more details.

What is phosphorus binder medication?

Your doctor may prescribe a medication that lowers phosphorus in your blood. This is called a phosphorus or phosphate binder.

Phosphorus binder medication acts like a sponge to soak up the phosphorus from the food you eat so less phosphorus goes into your blood. For this medication to work properly, you must always take it with food.

Phosphorus binder medication continued...

Some names of this medication are: calcium carbonate (Tums), calcium acetate (Phoslo), Sevelamer (Renagel) and lanthanum carbonate (Fosrenol).

The amount of this medication you need depends on your diet and your blood phosphate level. You can talk to your doctor and/or dietitian about this.

What food should I limit and what food should I choose?

Food Group	High phosphorus foods to Limit	Low phosphorus foods to Choose
Meat and Protein	<ul style="list-style-type: none"> • Organ meats, oysters, clams, mussels, bones from canned fish such sardines and salmon • Seasoned meats containing phosphate additives • Processed meats 	<ul style="list-style-type: none"> • All other unseasoned or fresh beef, chicken, pork, turkey, veal, lamb, fish, eggs
Dairy and Dairy Substitutes	<ul style="list-style-type: none"> • Milk (cow, goat, soy, coconut, chocolate) and other dairy products such as yogurt, pudding, ice cream, frozen yogurt, and cream soups • Limit to _____ cup(s) or _____ ml each day. • Processed cheese and cheese spreads 	<ul style="list-style-type: none"> • Rice milk (unfortified) • Sherbet/sorbet, gelatin desserts • Cream cheese, cottage cheese, ricotta, brie, soft goat, parmesan • Hard block cheese such as cheddar, mozzarella, Swiss, gouda, gruyere, camembert, provolone, blue, feta

Food Group	High phosphorus foods to Limit	Low phosphorus foods to Enjoy
Breads, grains and cereals	<ul style="list-style-type: none"> • Cereal: bran cereal (All Bran, Raisin Bran, Red River, Grapenuts), granola, oatmeal, oat bran, wheat germ, Shredded Wheat, Shreddies, Total Vector, Wheatabix • Bread: whole grain, 100% whole wheat, bran, multigrain, pumpernickel, dark rye, corn bread, whole wheat English muffins • Grains: brown/long grain or wild rice, whole wheat pasta, quinoa, packaged macaroni and cheese • Other: store-bought tea biscuit, cake, muffin, pancake and waffle mixes, homemade bran and oat bran muffins, fruit cake, rye and whole grain crackers, Triscuits, crackers with peanut butter or cheese filling, cake, donuts 	<ul style="list-style-type: none"> • Cereal: non-bran cereals, rice cereals, corn flakes, Rice Krispies, Special K, Puffed Ric or Wheat, Corn Chex, Crispex, Corn Bran Squares, Cream of Wheat, Cream of Rice, Just Right, Rice Chex, Life, Cheerios, • Bread: white, 60% whole wheat, light rye, cracked wheat, sourdough • Grains: white: rice, pasta, rolls, bagels, pita, hamburger and hotdog buns, English muffins, couscous, bulgur • Other: unsalted crackers (soda, melba toast), rice cakes, graham crackers, homemade pancakes, waffles, muffins, tea biscuits, cakes and cookies, yeast donuts, fruit pies, angel food cake, pound cake, sponge cake
Vegetables	<ul style="list-style-type: none"> • Dried peas, beans, lentils • Edamame, soy beans • Lima, pinto, split peas, navy, chickpeas • Hummus • Baked beans 	<ul style="list-style-type: none"> • All vegetables which are not on the “High phosphorus foods to Limit” list

Food Group	High phosphorus foods to Limit	Low phosphorus foods to Enjoy
Beverages	<ul style="list-style-type: none"> • Cola carbonated beverage, Dr. Pepper • Iced tea, lemonade, fruit punch and powdered drink crystals made with phosphate additives • Beer • Hot chocolate and cocoa drinks • Non-dairy creamer • Flavoured water 	<ul style="list-style-type: none"> • Non-cola soft drinks (ginger ale, sprite, 7-Up, lemon/lime soda, root beer) • Homemade iced tea, lemonade and fruit punch without phosphate additives • Alcohol (gin, vodka, whiskey, wine) but only as advised by your doctor. • Coffee, tea • 100% fruit juice without added calcium
Other	<ul style="list-style-type: none"> • Nuts and seeds, including chia or flaxseeds • Chocolate, chocolate bars • Hazelnut spread • Nut butters • Tahini 	<ul style="list-style-type: none"> • Unsalted popcorn, pretzels, corn chips • Lower Phosphorus Baking Soda Substitute: Instead of 1 teaspoon (5 ml) baking soda, try ¼ teaspoon (1.25 ml) baking soda + ½ teaspoon (2.5 ml) cream of tartar

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Where does phosphorus in food come from?

Phosphorus in food comes from 2 sources:

1. **Naturally occurring in food:** Phosphorus is naturally found in food such as whole grains, dried beans and lentils, meat and dairy products.
2. **Additives:** Phosphorus is added to food for many reasons such as to make food creamier, add flavour, maintain the juiciness of meat, reduce acidity, and increase shelf life.

What are phosphorus additives?

- 90 to 100% of phosphorus additives are absorbed by the body. Only about 60% of phosphorus naturally found in food is absorbed by the body.
- It is important to reduce and control your intake of phosphorus additives as a key part of managing phosphorus levels in your body.
- The amount of phosphorus a food contains does not legally need to be included on the Nutrition Facts Panel of packaged foods. Therefore, it is important to look at the ingredient list for 'hidden' sources of phosphorus.
 - **Phosphoric acid**
 - **Pyrophosphate**
 - **Polyphosphate**
 - **Hexametaphosphate**
 - **Dicalcium phosphate**
 - **Monocalcium phosphate**
 - **Aluminum phosphate**
 - **Sodium polyphosphate**
 - **Sodium tripolyphosphate**
 - **Tricalcium phosphate**
 - **Trisodium phosphate**
 - **Tetrasodium phosphate**

Helpful Hint

Look for:

- **Phos**
- **phos**

Turn over →

Food products that commonly contain phosphorus additives:

Food	Product
Meat, Poultry, Seafood	<ul style="list-style-type: none"> • Processed items such as frozen chicken products (nuggets, strips etc.), hot dogs, deli meats, crab • Food enhanced with broth such as quick frozen chicken or turkey • When you see the word ‘seasoned’ on meat you may also see phosphorus additives
Bakery Products	<ul style="list-style-type: none"> • Biscuits, pancake mix, frozen waffles, cake mix, snack cakes, breakfast cereal, granola bars
Cheese	<ul style="list-style-type: none"> • Processed and spreadable cheeses • Cheese flavoured snack foods
Instant Puddings	<ul style="list-style-type: none"> • Puddings and sauces
Beverages	<ul style="list-style-type: none"> • Colas, Dr. Pepper • Some iced tea, lemonade, fruit punch drinks • Non-dairy creamer • Flavoured water • Look for phosphorus additives in drinks that come in plastic bottles and some powdered drink crystals
Other	<ul style="list-style-type: none"> • Fast food • Commercially prepared frozen entrees