

# Phosphorus and Your Kidney Diet

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Phosphorus is a mineral your body needs to work properly. Healthy kidneys remove the phosphorus your body does not need. If your kidneys are not working well, the extra phosphorus builds up in your blood.

When your blood phosphorus levels are too high, you may have to eat less of the foods that are higher in phosphorus.

## Phosphorus and your bones

When kidney disease makes your blood phosphorus levels rise, you can lose calcium from your bones. This can cause itchy skin, sore joints, and weak bones. The longer your blood phosphorus levels are high the higher your risk of heart disease is.

## What can you do?

Below are ways to keep your blood phosphorus levels within a healthy range for your body:

- Limit foods that are high in phosphorus.
- Read ingredient lists on food packages for hidden sources of phosphorus (see page 4).
- Take the right amount of phosphorus binders with meals and snacks. Check with your dietitian or doctor to make sure you are taking the right number of binders with your meals and snacks.
- If you are on dialysis, go to all dialysis treatments and stay for the entire treatment. Dialysis removes some phosphorus from your blood.

## What are phosphorus binders?

Phosphorus binders are pills that you take with food. They act like a sponge to soak up phosphorus from your food and stop it from being absorbed into your blood.

There are different types and strengths of phosphorus binders. Examples include calcium carbonate (Tums<sup>®</sup>) Renagel<sup>®</sup>, and magnesium hydroxide (Milk of Magnesia<sup>®</sup>).

Your doctor or dietitian will tell you if you need phosphorus binders, which phosphorus binders to take, and how much.

## Limiting the phosphorus you eat

Many foods that are good sources of protein, such as meat, are also high in phosphorus. Choose foods that are rich in protein and low in phosphorus more often.

Meat and Alternatives		
Choose	Limit	Avoid
<ul style="list-style-type: none"> <li>• Beef, veal</li> <li>• Chicken, turkey, duck</li> <li>• Eggs</li> <li>• Fish, some shellfish (blue crab, lobster, shrimp)</li> <li>• Lamb or mutton</li> <li>• Pork</li> <li>• Salmon, canned with bones removed</li> <li>• Wild meat (moose, caribou, deer, elk)</li> </ul>	<ul style="list-style-type: none"> <li>• Beans or lentils, dried, cooked: baked beans, pork and beans, split peas, black beans, chickpeas, kidney beans, and soybeans, ½ cup (125 mL) per week</li> <li>• Nuts and nut butters, 2 Tbsp (30 mL) per day or no more than ½ cup (125 mL) in a recipe</li> <li>• Tofu, ⅓ cup (75 mL)</li> </ul>	<ul style="list-style-type: none"> <li>• Organ meats such as liver, heart, and kidney</li> <li>• Oysters, clams, sardines</li> <li>• Processed meats: sausage, ham, hot dogs, salami, and pepperoni (see <i>Hidden sources of phosphorus</i> on page 4)</li> <li>• Salmon, canned with bones</li> <li>• Seeds (pumpkin, sunflower)</li> </ul>
Milk and Alternatives (Limit to 2 servings per day)		
Choose	Limit	Avoid
<ul style="list-style-type: none"> <li>• Cheese: block cheddar, mozzarella, Swiss, 1 oz (30 grams)</li> <li>• Cottage cheese without added salt, ½ cup (125 mL)</li> <li>• Custard, ½ cup (125 mL)</li> <li>• Ice cream, ½ cup (125 mL)</li> <li>• Milk: skim, 1%, 2%, whole, prepared powdered milk, or cream ½ cup (125 mL) *Milk in soups and puddings count as part of the daily allowance.</li> <li>• Pudding, ½ cup (125 mL)</li> <li>• Soy beverage, ½ cup (125 mL)</li> <li>• Yogurt, ½ cup (125 mL)</li> </ul>		<ul style="list-style-type: none"> <li>• Cheese slices and spreads, processed (Cheez Whiz<sup>®</sup>)</li> <li>• Non-dairy coffee whiteners, liquid or powder (Coffee-Mate<sup>®</sup>)</li> <li>• Milk, chocolate flavoured</li> <li>• Milk, condensed or evaporated</li> <li>• Ovaltine<sup>®</sup>, malted chocolate</li> </ul>
<p><b>Tip:</b> If you put milk on your cereal, drink milk by the glass, or add milk to your coffee, these count as one serving of milk. Choose only one other milk product per day.</p>		

## Grain Products

Choose	Limit	Avoid
<ul style="list-style-type: none"> <li>• Barley, pearl</li> <li>• Bread: white, French, Italian, cracked wheat, light rye, or sourdough</li> <li>• Cold Cereals: Alpha Bits<sup>®</sup>, Corn Bran<sup>®</sup>, Cornflakes<sup>®</sup>, Corn Pops<sup>®</sup>, Crispex<sup>®</sup>, Frosted Flakes<sup>®</sup>, Puffed Rice<sup>®</sup>, Puffed Wheat<sup>®</sup>, Rice Krispies<sup>®</sup>, Special K<sup>®</sup></li> <li>• Crackers: soda crackers, Melba, Wheat Thins<sup>®</sup>, unsalted</li> <li>• Cream of wheat, corn grits</li> <li>• Digestive cookies, graham wafers, arrowroot biscuits</li> <li>• Flour: white, rice, light rye</li> <li>• Muffins, homemade plain, berry or oatmeal</li> <li>• Pasta, white, or couscous</li> <li>• Pita bread, wraps, chapati and roti, white, or 60% whole wheat</li> <li>• Popcorn, unsalted</li> <li>• Pretzels, unsalted (10 twists)</li> <li>• Rice or rice noodles, white</li> <li>• Tortilla chips, unsalted</li> <li>• Tortillas, corn</li> </ul>	<ul style="list-style-type: none"> <li>• Oats, rolled, ¾ cup (175 mL) per day</li> <li>• Homemade pancakes, waffles, muffins, and biscuits</li> </ul> <p>Speak to your dietitian about whether you should eat whole grains.</p>	<ul style="list-style-type: none"> <li>• Biscuits, pancakes and waffles (instant)</li> <li>• Breads, whole grain (100% whole wheat, multigrain, dark rye)</li> <li>• Cereals, cold: whole grain cereals such as All Bran<sup>®</sup>, All Bran Buds<sup>®</sup>, Bran Flakes<sup>®</sup>, Cheerios<sup>®</sup>, Fiber One<sup>®</sup>, Frosted Mini Wheats<sup>®</sup>, granola, Grape Nuts<sup>®</sup>, Life<sup>®</sup>, Mueslix<sup>®</sup>, Oat Square<sup>®</sup>, Oatmeal Crisp<sup>®</sup>, Raisin Bran<sup>®</sup>, Shreddies<sup>®</sup>, Shredded Wheat<sup>®</sup>, Special K Plus<sup>®</sup>, Total<sup>®</sup>, Wheat Squares<sup>®</sup></li> <li>• Cereals, hot: oat bran, Red River<sup>®</sup>, Sunny Boy<sup>®</sup></li> <li>• Cereal made with nuts, seeds, or dried fruit</li> <li>• Flour: whole wheat, dark rye, bran, wheat germ</li> <li>• Macaroni and cheese mixes (Kraft Dinner<sup>®</sup>)</li> <li>• Muffins, commercial baking mixes, and frozen baked products (see <i>Hidden sources of phosphorus</i> on page 4)</li> <li>• Muffin, bran and oat bran</li> <li>• Pasta, whole wheat</li> <li>• Pita bread, wraps, chapati, roti, whole grain</li> <li>• Rice, brown or wild</li> </ul>

Other Foods		
Choose	Limit	Avoid
<ul style="list-style-type: none"> <li>• Artificial sweeteners</li> <li>• Jam, jelly</li> <li>• Jell-O® jelly powder</li> <li>• Rice drink, non-enriched (Rice Dream®)</li> <li>• Sherbet</li> <li>• Soft drinks, non-cola: 7-Up®, ginger ale, Sprite®, lemonade, some root beers, grape, orange, lemon-lime, or cream soda; check the ingredient list (see <i>Hidden sources of phosphorus</i> below)</li> <li>• Sugar, white or brown, honey</li> <li>• Sweets: hard candies, marshmallows, jelly beans</li> </ul>	<ul style="list-style-type: none"> <li>• Alcohol, as advised by your doctor</li> <li>• Caramels, 5 per day</li> <li>• Chocolate, 15 grams per day (size of a mini-chocolate bar)</li> <li>• Fruit, dried: figs, raisins, dates, and coconut</li> <li>• Sour cream or whipping cream, 1 Tbsp (15 mL)</li> </ul>	<ul style="list-style-type: none"> <li>• Beer, stout</li> <li>• Cola and diet cola drinks: Coca-Cola®, Dr. Pepper®, Pepsi®, Diet Coke®, Diet Pepsi®</li> <li>• Hot chocolate mix, cocoa</li> <li>• Pizza</li> </ul>

## Hidden sources of phosphorus

Some packaged foods have phosphate additives, which contain phosphorus. Phosphate additives are used to improve the taste and appearance of a food. Limit or avoid foods with these additives.

Reading the ingredient list on food packages is the best way to find out if the food has phosphate additives. Look for the words “phosphate” or “phosphoric” in the ingredient list. Examples of phosphate additives are: disodium phosphate, phosphoric acid, hexametaphosphate, or tri-calcium phosphate.

### Example: Beverage ingredient list:

Ingredients: carbonated water, fructose, caramel colour, **phosphoric acid**, natural flavour, and caffeine.

Watch for phosphate additives in these foods and beverages:

- Hot dogs and chicken fingers
- Deli meats, sausages, and ham
- Processed cheeses
- Sauces
- Non-cola soft drinks, iced tea, root beer
- Drink crystals (Crystal Light®) and flavoured waters
- Refrigerated or frozen prepared foods
- Instant mixes (muffin, pancake, pudding, potatoes)

Remember to check the ingredient list every time you buy food as manufacturers often change the ingredients.