



Ontario Renal Network

Chronic Kidney Disease Nutrition Fact Sheet

Phosphorus (phosphate)

Phosphorus

Phosphate additives and label reading

Phosphorus is often added to processed foods to enhance flavour and to act as a preservative. Most processed meats and many beverages, such as colas contain added phosphorus. The amount of phosphorus a food contains does not legally need to be included on the Nutrition Facts panel of packaged goods. To see if there is added phosphorus, look at the list of ingredients for words such as phosphoric acid and sodium phosphate. The word “seasoned” on meat, chicken or pork may also indicate that phosphorus has been added. Unlike naturally occurring phosphorus, the phosphorus from food additives is almost completely absorbed by your body. You should avoid these foods.

Medications to control phosphate level

Your doctor may prescribe phosphorus binders (calcium, Tums, Oscal, Renagel, Fosrenol). These medications act like a sponge to soak up the phosphorus in your food. For phosphorus binders to work properly, you must always take them with food. **For best results, take this medication in the middle of your meal or snack.** Do not take phosphorus binders at the same time as iron supplements. Dialysis treatments remove some phosphorus from your blood. It is important to attend all of your dialysis treatments.

What is a safe level of phosphate in my blood?

A normal blood phosphate level for adults is 0.8–1.45 mmol/L, but your target level may be different. Speak to your health-care team if you have questions.



Quick Tip:

To see if there is added phosphorus, look at the list of ingredients for words such as phosphoric acid and sodium phosphate. The word “seasoned” on meat, chicken or pork may also indicate that phosphorus has been added.




PHOSPHORUS (PHOSPHATE) AND CHRONIC KIDNEY DISEASE (CKD)

Phosphorus is a mineral that helps keep your bones strong and healthy. It is also known as phosphate. As kidney function declines, the phosphorus level in your blood may rise. High blood phosphorus may cause itchy skin or painful joints and loss of calcium from your bones. Calcium and phosphorus crystals can form in your body causing damage to your organs. You may need to limit the amount of high and moderate phosphorus foods you eat. These include milk, cheese and other dairy products and processed foods that contain phosphorus additives. Your registered dietitian will make sure you have the right amount of phosphorus in your daily eating plan.



Did You Know:

A normal blood phosphate level for adults is 0.8–1.45 mmol/L, but your target level may be different.



What foods should I choose and what should I avoid?

In general, you should limit milk and dairy products such as yogurt, ice cream and puddings to a total daily maximum of 1 cup.

Meat and protein foods also contain phosphorus, but they are an essential part of your diet. Choose fresh, unprocessed foods more often. Your registered dietitian will give you a protein recommendation based on your body size, your nutritional needs and your stage of kidney disease.



Remember:

You may need to limit the amount of high and moderate phosphorus foods you eat. These include milk, cheese, other dairy products and processed foods that contain phosphorus additives.

Phosphorus Guidelines for Choosing Foods

Dairy and Dairy Substitutes

CHOOSE

- Milk or yogurt (ideally choose 1% or less milk fat) – ½ cup per day
- Sherbet (sorbet), popsicle, frozen dessert topping (Cool Whip)
- Low-sodium cottage cheese and/or cream cheese (ideally choose 1% or less milk fat) – ¼ cup per day
- Cheese: cheddar, mozzarella or Swiss – 1 oz. (size of thumb), limit to 3 times a week
- Tea, hot apple cider
- Unfortified rice or almond beverage without phosphorus additives – ½ to 1 cup per day

AVOID

- Ice cream
- Processed cheese spread (Cheez whiz)
- Processed cheese (Kraft singles, Velveeta, etc.)
- Malted milk (e.g. Ovaltine)
- Soy, rice or almond beverages that contain phosphorus on the ingredient list

Grains and Cereals

CHOOSE

- Non-bran cereal, shredded wheat, rice cereals, corn flakes, cream of wheat or cream of rice
- White rice, brown rice, pasta, barley, couscous, bulgur
- Tea biscuits: homemade (use baking powder substitute**)
- Bread: white, 60–100 percent whole wheat, cracked wheat, light rye or sourdough
- Pancakes and waffles: homemade (use baking powder substitute**)
- Muffins: homemade (use baking powder substitute**)

AVOID

- Bran cereal, granola
- Packaged pasta mixes with sauce
- Tea biscuits: store-bought, mixes and refrigerated
- Bread: multi-grain, dark rye
- Pancakes and waffles: commercial, mixes and frozen
- Muffins: all store-bought and mixes

**** Baking powder is high in phosphorus. Instead of 1 tsp. of baking powder, try this low-phosphorus alternative: ¼ tsp. of baking soda + ½ tsp. cream of tartar**

Meat and Other Proteins

CHOOSE

- Fish (other than those listed under “Avoid”)
- Unseasoned beef, chicken, pork, turkey, veal
- Eggs

AVOID

- Carp, crayfish, fish roe, oysters, sardines, bones from canned fish.
- Frozen fish with phosphorus additives—check the labels and avoid ingredients with the word PHOSPHATE or PHOSPHORIC
- “Seasoned” meats containing phosphorus additives, processed meats such as hot dogs, chicken nuggets—check the labels and avoid ingredients with the word PHOSPHATE or PHOSPHORIC.
- Beef liver, chicken liver and organ meats.



Phosphorus

Beverages

CHOOSE

- Non-cola soft drinks (ginger ale, lemon/ lime-flavoured soda, root beer)
- Spirits (gin, vodka, rum, whiskey) and wine (note: only use alcohol as advised by your doctor)
- Lemonade (with no added phosphorus)
- Homemade iced tea
- Tea, hot apple cider

AVOID

- Cola soft drinks (diet or regular Pepsi, Coke, etc.), Dr. Pepper, Fanta
- Beer, stout, ale
- Fresh or frozen juices with added calcium
- Iced tea with phosphorus additives— check the labels and avoid ingredients with the word PHOSPHATE or PHOSPHORIC
- Cocoa, hot chocolate

Snacks and Misc

CHOOSE

- Unsalted popcorn, unsalted pretzels, unsalted corn chips, unsalted rice crackers
- Hard candy*, fruit-flavoured candy* or jelly beans*
- Jam*, jelly* and honey*

AVOID

- Nuts, pumpkin seeds, sesame seeds, sunflower seeds
- Chocolate bars
- Chocolate hazelnut spread (e.g., Nutella), nut bars, tahini

* These items are high in sugar. Limit or avoid if you have diabetes unless you are treating low blood sugar.

My Notes

My target phosphorus level is:

My current phosphorus level is:

My goals: (e.g., I will choose ginger ale instead of cola)

1.

2.

3.

Key points:

Dietitian:

Telephone:

About the Chronic Kidney Disease Nutrition Fact Sheets

The Chronic Kidney Disease (CKD) Nutrition Fact Sheets were created in 2012 by the Ontario Renal Network in collaboration with Renal Dietitians in Ontario to standardize materials and to form a basis for cohesive education tools. The nutrition working group adapted the fact sheets available on the Kidney Foundation of Canada's website to create the CKD Nutrition Fact Sheets. These fact sheets are not meant to replace existing education materials you may have, but rather to supplement them as required. The CKD Nutrition Fact Sheets can be used individually or as a set. The three fact sheets (revised in 2015) are: Phosphorus (phosphate); Potassium; Diabetes & Diet.

The CKD Nutrition Fact Sheets were made possible through the efforts and commitments of the Independent CKD Dietitian Working Group: Melissa Atcheson, RD (Grand River Hospital); Darlene Broad, RD (Kingston General Hospital); Shannon Chesterfield, RD (Windsor Regional Hospital); Sandra Dunphy, RD (St. Joseph's Healthcare Hamilton); June Martin, RD (Grand River Hospital); Christine Nash, RD (University Health Network).

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