



Ontario Renal Network

# Chronic Kidney Disease Nutrition Fact Sheet



## Potassium





# Potassium

## POTASSIUM AND CHRONIC KIDNEY DISEASE (CKD)

Potassium is a mineral which helps your nerves and muscles work well. Normally, healthy kidneys will keep the right amount of potassium in your body. If your kidneys are not working well, the potassium level in your blood can be too high or too low. This can affect your heartbeat. A very high or low level of potassium is **dangerous**, as it can cause your heart to stop beating.

Most of the potassium in your body comes from the foods and drinks you consume. Almost all foods have potassium, but some have much more than others. The amount of potassium your body can tolerate depends on several factors such as: **body size, medications and kidney function.**



## Did You Know:

The number of servings you have each day is important. Even low potassium foods can make your potassium level high if you have too much of them.



## People with CKD

Some people in the early stages of chronic kidney disease (CKD) do not need to limit the amount of potassium they eat, while others may need to do so. There is no benefit to restricting potassium unless levels in your blood are high. Based on your blood lab test results, your healthcare team will let you know if you need to limit your potassium intake.

**Important:** If you are on hemodialysis, you may need to limit the amount of potassium you have in your foods and drinks to avoid too much build-up between treatments. With peritoneal dialysis, you may be able to enjoy a variety of higher potassium foods, but check with your registered dietitian and/or doctor to be sure.

## What is a safe level of potassium in my blood?

The normal blood potassium level for adults is 3.5–5.0 mmol/L. If you are on peritoneal dialysis, your goal is less than 5.0 mmol/L. If you are on hemodialysis, your goal is less than 5.5 mmol/L.

## How can I keep my potassium level from getting too high?

**Different foods have very different amounts of potassium.** You may need to limit or avoid foods that are high in potassium. Your registered dietitian will help you make an eating plan that gives you the right amount of potassium.

**Serving size matters.** You can eat larger portions of foods low in potassium, but should eat smaller portions of those high in potassium. For example, raspberries are low in potassium, so a serving size is 1 cup. Cooked celery is higher in potassium, so a serving size is  $\frac{1}{4}$  cup.

**The number of servings you have each day is important.** Even low potassium foods can make your potassium level high if you have too much of them. Speak with your registered dietitian about the number of servings that is right for you.

**Cooking methods can affect the potassium content in some foods.** You can reduce the amount of potassium in root vegetables, such as potatoes and sweet potatoes, by boiling them in large amounts of water (directions provided on the next page).

Other foods will shrink to a smaller serving size when cooked, but the potassium content remains the same. For example:  $\frac{1}{2}$  cup of raw spinach will shrink to 1 tablespoon when cooked. A  $\frac{1}{2}$  cup of cooked spinach has a much higher potassium content than  $\frac{1}{2}$  cup of raw spinach.

**Do not use the liquid** from canned, cooked or frozen fruits and vegetables.

**If you receive dialysis,** be sure to complete all of your dialysis treatments.



# Potassium

## How to double boil vegetables

Boiling vegetables twice is considered the best way to remove the most potassium from root vegetables such as potatoes and sweet potatoes. This process does not turn potatoes into a low potassium food, but it does allow you to include a moderate amount of these foods safely in your diet.

1. Wash and peel the vegetable.
2. Dice or thinly slice the vegetable.
3. Place the vegetable in room temperature water. Use two times the amount of water to the amount of vegetable. For example, use 4 cups of water to boil 2 cups of potatoes.
4. Bring the water to a boil.
5. Drain off the water and add fresh, room temperature water. Again, use two times the amount of water as the amount of vegetable.
6. Bring the water to a boil again and cook until the vegetable is soft and tender.
7. Drain and discard the boiling water.



### Quick Tip:

The best way to remove potassium from root vegetables is to boil them twice.



## What foods should I choose and what should I avoid?

The food lists on the following pages can help you choose the foods that are lower in potassium and avoid those that are high in potassium. They are a guide and do not replace the advice of a healthcare professional. If you are unsure about a particular food, please ask your registered dietitian.

**Important note:** In order to determine whether a fruit or vegetable should go on the **choose** or **avoid** list, we set a maximum of 200 mg of potassium per serving (as determined by the Canadian Nutrient File). In other words, we recommend that you avoid any fruit or vegetable with more than 200 mg of potassium per serving. However, other resources and renal programs may use different cut-off levels to develop their lists of recommended foods. As a result, you may find some variations in food lists from other sources. If you are in doubt about a particular food, please ask your registered dietitian.



## Remember:

Do not use the liquid from canned, cooked or frozen fruits and vegetables.

# Potassium Guidelines for Choosing Foods

## Juices and Nectars

**Note:** You must count juice servings as part of your total daily fruit servings

### CHOOSE

- Apple juice
- Apricot nectar
- Blackberry juice
- Cranberry juice
- Cranberry cocktail
- Grape juice
- Guava nectar
- Lemon juice
- Lime juice
- Papaya nectar
- Peach nectar
- Pear nectar
- Pineapple juice

### AVOID

- Carrot juice
- Clamato juice
- Coconut juice or coconut water
- **Grapefruit juice\***
- Orange juice
- Passionfruit juice
- Pomegranate juice
- Prune juice
- Tangerine juice
- Tomato juice
- V8 juice (regular or low sodium)
- Vegetable juice

## Fruits

**Note:** Limit your fruits (and fruit juices) to a total 3 servings per day or as recommended by your registered dietitian

### CHOOSE +fresh (raw) unless otherwise noted.

- Acerola cherry (West Indian cherry)
- Apple – 1
- Apple rings, dried – 5
- Applesauce
- Asian pear – 1 fruit, 5.7 cm diameter
- Blackberries
- Blueberries
- Boysenberries
- Canned fruit (all types), drained
- Casaba melon
- Cherries – 10
- Chokecherry
- Clementine – 1
- Cloudberry (bakeapple)
- Crabapple
- Cranberries (lingonberry), cooked, dried or raw
- Currants
- Feijoa (pineapple guava)
- Fig, fresh – 1 large fruit, 6.4 cm diameter
- Fruit cocktail, drained
- Gooseberries
- Groundcherry (cape gooseberry, golden berry)
- **Grapefruit\*** – ½
- Grapes – 20
- Jackfruit, canned
- Jujubes (red date, Chinese date) – 5 medium fruits
- Kumquat – 5 fruits
- Lemon – 1
- Lime – 2
- Loganberries, frozen
- Longan (dragon's eye) – 20 fruits
- Lychees (litchi) – 10
- Mandarin (tangerine) – 1 large fruit, 6.4 cm diameter
- Mango – ½
- Mangosteen, canned and drained
- Pear – 1 medium
- Pineapple
- Pitanga (Brazilian cherry)
- Plum, sliced
- Pomegranate – ½ of fruit, 9.5 cm diameter
- Prunes, dried, uncooked, 3
- Quince, 1 fruit
- Rambutan, canned and drained
- Raspberries
- Rhubarb
- Rose-apple (pomarrosa) – 1 small fruit, 6.4 cm diameter
- Strawberries
- Tangelo, 1
- Watermelon

\* **Potential Drug Interaction:** Grapefruit and grapefruit juice may prevent some medications from working properly. Ask your pharmacist or registered dietitian if it is safe to drink grapefruit juice with your medication(s).



## NUTRITION FACT SHEET

# Potassium

## Fruits (continued)

**AVOID** +fresh (raw) unless otherwise noted.

- Apricots
  - Avocado (alligator pear)
  - Banana
  - Breadfruit
  - Cantaloupe
  - Coconut, dried or raw
  - Dates
  - Durian
  - Elderberries
  - Figs, dried
  - Guava
  - Honeydew melon
  - Jackfruit, fresh
  - Kiwi
  - Loquat (nispero)
  - Medjool date
  - Nectarine
  - Orange
  - Papaya (pawpaw, tree melon)
  - Passion fruit (granadilla, lilikoi)
  - Persimmon, Japanese
  - Persimmon, native
  - Plantain
  - Pomelo
  - Prickly pear
  - Raisins
  - Sapodilla
  - Sapote (casimiroa)
  - Soursop (sweetsop, guanabana, sugar/ custard apple, cherimoya)
  - **Starfruit\*\*** (carambola, bilimbi, belimbing, star apple)
  - Tamarind pulp
  - Zapote (sapodilla)

# Vegetables

**Note:** Limit your vegetables to 3 servings per day or as recommended by your registered dietitian

**1 serving  
≡  $\frac{1}{2}$  cup<sup>+</sup>**

**CHOOSE** <sup>+ boiled and drained, unless otherwise noted.</sup>

- Alfalfa sprouts, raw – 1 cup
  - Arugula (rocket), raw – 1 cup
  - Asparagus – 5 spears
  - Bamboo shoots, canned and drained – 1 cup
  - Beans (green and wax)
  - Bean sprouts, raw
  - Beet greens, raw
  - Beets, canned slices, drained
  - Belgium endive (chicory, witloof)
  - Bitter melon (bitter gourd, balsam pear leafy tips)
  - Bok choy (Chinese chard, pak choi), raw, shredded
  - Broad beans (fava beans), fresh, boiled and drained
  - Broccoli, chopped, raw or frozen
  - Brussels sprouts, raw
  - Cabbage (green, red, savoy) raw, shredded – 1 cup; cooked – ½ cup
  - Cactus (cactus pads, cacti, nopales, prickly pear)
  - Calabash (bottlegourd, Indian pumpkin)
  - Carrot, raw – 1, 16 cm long or 8 baby; boiled/ drained – ½ cup
  - Cauliflower, raw or cooked
  - Celery (celery root)
  - Celery, raw – 1 stalk
  - Chayote, raw or boiled and drained

## **Vegetables (continued)**

**CHOOSE** + boiled and drained, unless otherwise noted.

- Chicory greens (wild), raw – 1 cup
  - Chilies (hot, red or green), canned
  - Chrysanthemum greens, raw
  - Collard greens (collards)
  - Corn on the cob, boiled – 1 small, 14–16.5 cm long
  - Corn, kernels, frozen or canned, boiled and drained
  - Coriander (cilantro), raw
  - Cress, raw
  - Crookneck squash, raw or cooked
  - Cucumber, sliced – 1 cup
  - Daikon (Oriental radish, white radish), raw
  - Dandelion greens, raw or boiled, drained
  - **Drumstick plant leaves\*\***, raw, chopped – 1 cup
  - Eggplant (aubergine, brinjal), raw or boiled, drained – 1 cup
  - Endive/escarole, raw, chopped – 1 cup
  - Fennel, raw
  - Fiddlehead greens (ferns)
  - Gai lan (Chinese broccoli/kale)
  - Grape leaves, raw – 1 cup
  - Hearts of palm, canned and drained
  - Hominy (canned, amount to make ½ cup)
  - Irishmoss (seaweed), raw
  - Jew's ear (cloud or wood ear), raw
  - Jicama (yam bean), raw or boiled and drained
  - Jute, raw – 1 cup
  - Kale, raw or boiled and drained – ½ cup
  - Leeks, raw or boiled and drained – 1 cup
  - Lettuce (1 cup)
  - Mint – peppermint, fresh – 1 cup
  - Mushrooms: canned and drained; brown (crimini), white, raw
  - Mustard greens (gai choy), raw or cooked
  - Nappa cabbage (suey hoy, Chinese cabbage), raw or boiled, drained – 1 cup
  - Okra, raw or boiled and drained
  - Onion (all types), raw or boiled, drained
  - Parsley, raw
  - Peas (green), frozen, boiled or canned, drained – 1 cup; raw – ½ cup
  - Pepper (sweet), chopped, raw or cooked
  - Purslane, raw
  - Radicchio, raw – 1 cup
  - Radish, sliced, raw
  - Rapini, raw
  - Seaweed (agar, dulse, nori), dried
  - Seaweed (Irishmoss, wakame), raw
  - Snow peas, raw – 10
  - Spaghetti squash, baked or boiled/ drained
  - Spinach, raw – 1 cup
  - Swamp cabbage (skunk cabbage, water convolvulus), raw or boiled/ drained
  - Swiss chard, raw – 1 cup
  - Tomatillo (husk tomato), raw, chopped
  - Tomato – ½
  - Tomato (cherry) raw – 5
  - Turnip, cubed, raw or boiled, drained
  - Turnip greens, raw or boiled, drained
  - Water chestnuts, canned, drained
  - Watercress, raw – 1 cup
  - Waxgourd (Chinese preserving melon), raw or cooked – 1 cup
  - Zucchini, raw



## Grains

### AVOID + boiled and drained, unless otherwise noted.

- Amaranth leaves (yien choy, Chinese spinach)
- Artichoke heart
- Bamboo shoots
- Beans: adzuki, black, cannellini, kidney, lima, mung, navy, pink, pinto, Roman, soy, white
- Baked beans, canned
- Beet greens, cooked
- Beets
- Bitter melon (bitter gourd, balsam pear) pods
- Bok choy (Chinese chard, pak choi), cooked
- Broad beans (fava beans), canned or boiled from dry
- Brussels sprouts
- Burdock root
- Celeriac (celery root), raw
- Cassava (yucca, manioc), raw
- Chickpeas (garbanzo beans, Bengal gram)
- Chilies (hot, red or green), raw
- Chrysanthemum greens
- Cress (garden cress)
- Daikon (Oriental radish, white radish)
- Dock (sorrel, sour grass, wild rhubarb)
- Drumstick pods
- Edamame (soybeans)
- Hearts of palm, canned or raw
- Jerusalem artichoke (sunchokes), raw
- Jute (potherb)
- Kohlrabi
- Lentils
- Longbean (yardlong bean)
- Lotus root
- Mint/spearmint, fresh
- Mushrooms: all dried; portabella
- Parsnips
- Pepitas (pumpkin seeds), roasted
- **Potato\*\*\***
- Potato: baked, microwaved, French fries, potato chips
- Pumpkin
- Purslane
- Rapini
- Rutabaga
- Salsify (oysterplant, vegetable oyster)
- Spinach
- Split peas
- Succotash
- **Sweet potatoes\*\*\***
- Swiss chard, raw
- Taro shoots and leaves
- Tempeh
- Tomato paste
- Tomato sauce
- Water chestnuts, raw
- **Yam\*\*\***
- Zucchini, cooked

\*\*Toxic, do not consume. Speak to your registered dietitian.

\*\*\*Double-boil to lower potassium

### CHOOSE

- **Bread:** any made with white flour, light rye or 60% whole wheat
- **Cereal:** any corn or rice-based cereals (Corn Flakes, Rice Krispies, Cream of Rice), Cream of Wheat, non-bran cereals
- **Crackers:** cream crackers, graham crackers, matzo crackers, water crackers or soda crackers, taco/tortilla shells, tortilla chips, white melba toast, white rice cake
- **Rice/pasta:** white rice, white pasta, white soba noodles, wild rice
- **Baked goods:** arrowroot, angel food cake, blueberry muffins, oatmeal cookies, pound cake, shortbread, social tea cookies, sponge cake, sugar cookies, vanilla wafers, white or yellow cake
- **Other:** barley, buckwheat (kasha), bulgur, cornmeal, couscous, white flour

### AVOID

- **Bread:** any made with whole grain, 100% whole wheat, dark rye and/or nuts, seeds
- **Cereal:** bran or whole-grain cereal, granola, shredded wheat, cereals containing dried fruit, nuts and/or seeds
- **Crackers:** any crackers made from whole-wheat, whole grains or dark rye and/or nuts and seeds
- **Rice/pasta:** brown rice, whole-wheat pasta
- **Baked goods:** date square, fruitcake, gingerbread, gingersnap, granola bar. Any cookies, cakes, Danish, doughnuts, muffins etc. made from whole wheat/ grains and/or containing chocolate, dried fruit, nuts and seeds
- **Other:** amaranth, millet, natural bran, oats, quinoa, sorghum (milo), spelt, triticale, wheat berries, wheat germ, whole-wheat flour

## Milk Products

### CHOOSE

4–8 oz. per day of fresh milk, (ideally choose 1% or less milk fat), pudding, ice cream or yogurt

### AVOID

Chocolate milk, ice cream or frozen yogurt containing chocolate and/or nuts



# Potassium

## Additional Items

### CHOOSE

- Unprocessed meat, fish, poultry, cheese, nut butter (limit to 1 tbsp. per day)
- Herbs and spices, herb mixes
- Popcorn, pretzels, corn chips (choose lower sodium options)
- White sugar or sugar substitutes; honey, jam, jelly, pancake or corn syrup; butter, margarine, oil, mayonnaise
- Regular or decaf coffee (limit to 16 oz. per day) and tea, drink crystals, fruit punch, lemonade, Kool-Aid, soft drinks (non-colas)

### AVOID

- Salt-free cheese or processed meats with potassium added; nuts and seeds
- Salt substitutes containing potassium (i.e., No Salt, Nu Salt)
- Chocolate (any type), carob, potato chips
- Brown sugar, chocolate spread or syrup, molasses, maple sugar or maple syrup
- Canned coconut milk, specialty coffee (cappuccino, espresso, Turkish)

## My Notes

**My target potassium level is:**

**My current potassium level is:**

**My goals:** (e.g., I will choose cranberry juice instead of orange juice)

1.

2.

3.

**Key points:**

**Dietitian:**

**Telephone:**



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## 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 four fact sheets (revised in 2015) are: Phosphorus (phosphate); Sodium; 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); Saundra Dunphy, RD (St. Joseph's Healthcare Hamilton); June Martin, RD (Grand River Hospital); Christine Nash, RD (University Health Network).

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