

# Nutrition Guidelines for Kidney Disease

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# Nutrition Guidelines for Kidney Disease

**Good nutrition is important for people with kidney disease.** Good nutrition can help you:

- › Have energy throughout the day
- › Prevent infection
- › Prevent muscle loss
- › Keep a healthy weight
- › Slow the loss of kidney function

## What do my kidneys do?

- › Remove waste products and extra fluid from your body
- › Balance minerals in your blood
- › Help control blood pressure
- › Help make red blood cells
- › Make the active form of vitamin D so it can be used by your body

## Guidelines

Eating well helps people with kidney (renal) disease balance the nutrients and minerals in their body. The 4 things you need to watch for are:

- › **Protein**
- › **Phosphorus**
- › **Sodium (salt)**
- › **Potassium**

## Protein

Protein is used to build cells. It is needed for growth, building new tissue, and repairing injured or broken-down tissues.

## Why do I have to control my protein intake?

If you have kidney disease, you may need to watch how much protein you eat. Too much protein can cause waste products to build up in your blood. It is important to eat the right amount of protein every day. Talk with your dietitian about how much protein is right for you.

## Phosphorus

- Phosphorus and calcium are minerals found in your body. When your kidneys work normally, these minerals are usually well-balanced.
- When your kidneys do not work well, you may have more phosphorus in your blood and less calcium.
- To fix this, your body takes calcium from your bones. This can cause your bones to become weak and sore. They may break easily.
- If phosphorus in your blood stays high, the calcium in your blood can go into your skin, joints, blood vessels, and other body parts. This can cause itching, stiff joints, and problems with other parts of your body, like your heart.
- To manage your phosphorus and calcium levels, you can avoid certain foods and take phosphate binders. Some examples of phosphate binders are:
  - › Calcium carbonate (Tums®)
  - › Sevelamer (Renagel®)
  - › Milk of magnesia
  - › Lanthanum carbonate tablets (Fosrenol®)
- Take phosphate binders with food, as told by your health care provider.

### How can I keep my phosphorus and calcium balanced?

- Avoid high phosphorus foods. Choose foods from the ‘Best choices’ lists in this pamphlet starting on page 5.
- Take phosphate binders.
- Read food labels:
  - › Watch for foods with “phos” in the ingredient list, like phosphoric acid or dicalcium phosphate.
  - › Choose grain products with less than 6% daily value (DV) of phosphorus.
  - › If phosphorus is not on the label, choose foods with no more than 12% DV (less than 3 g) of fibre per serving.

### Important:

Your body absorbs almost **all** of the phosphorus that is **added** to processed or packaged foods.

## **Baking powder**

**Baking powder has high levels of phosphorus.** If your blood phosphorus levels are normal (less than 1.5 mmol/L), you can use this baking powder substitute:

- › Replace each tsp of baking powder with 1/4 tsp baking soda and 1/2 tsp cream of tartar.

Contains: 307 mg sodium, 247 mg potassium, 0.1 mg phosphorus. Check with your dietitian if this is OK for you.

## **Sodium**

Sodium is a mineral that controls fluid balance in your body. The main sources of sodium are table salt, and salt added to foods during processing. All plant and animal foods also contain some sodium.

### **Why is it important to control my sodium intake?**

Your kidneys can handle only a certain amount of sodium. If you take in too much, you will get thirsty, fluid will build up in your body, and your blood pressure will go up and strain your heart.

## **Potassium**

Potassium is a mineral found in your body.

### **Why is it important to control my potassium intake?**

If you have kidney disease, potassium can build up in your blood. Too much potassium in your blood can change how your muscles work, including your heart muscle.

To keep your blood potassium level normal (3.5 to 5.0 mmol/L), avoid high potassium foods. These include many fruits and vegetables, and milk. Choose foods from the 'Best choices' lists in this pamphlet.

## Guidelines

Follow these guidelines to choose foods lower in phosphorus, sodium, and potassium:

- **Do not** add salt or seasoned salt while cooking or at the table.
- Use unsalted seasonings, spices, and herbs to enhance the flavour of foods.
- Buy fresh and frozen unprocessed foods. Processed and convenience foods are high in salt.
- Many restaurant food items are high in phosphorus, sodium, and potassium. Only eat out once in a while.
- Avoid fast food items, like fried chicken, pizza, milkshakes, Mexican food, and Chinese food.
- Salt substitutes are often very high in potassium. **Do not** use salt substitutes (like NoSalt®, Nu-Salt®, or Half Salt™) without talking to your primary health care provider (family doctor or nurse practitioner) or dietitian first.
- Use this pamphlet to help with meal planning. By choosing more of the foods from the ‘Best choices’ list and less from the ‘Avoid’ list, you will be choosing foods lower in phosphorus, sodium, and potassium.
- Most food labels show the number of mg of sodium per serving, or a % daily value (DV) of sodium. Choose foods with less than 5% DV of sodium most often. Avoid foods with 10% or more DV of sodium.
- Most food labels do not show phosphorus or potassium. **This does not mean the food does not contain phosphorus or potassium.**
- Watch for foods with the following ingredients: “phos” (like phosphoric acid or dicalcium phosphate), “sodium” (like monosodium glutamate or sodium bicarbonate), and “potassium” (like potassium sorbate).
- These guidelines are low in fibre. If you need more fibre, talk with your primary health care provider or dietitian. You can use a fibre supplement (like flaxseed, Metamucil®, or Benefiber®), if needed.

## Grain products

### Best choices

- › All yeast breads, buns, and quick breads, other than those listed under “Avoid” (like white bread, French or Italian bread, hamburger buns)
- › Barley
- › Couscous
- › Oatmeal brown bread
- › Light rye bread
- › POM® Smart® Supergrains + Fibres White Loaf
- › Raisin bread
- › Pita bread (plain)
- › Tortilla wrap (plain)
- › Homemade pancakes and waffles
- › Homemade biscuits and muffins
- › Plain, unsalted crackers
- › Dry cereals made without salt (like shredded wheat, puffed wheat, Kellogg’s® Mini-Wheats®)
- › All dry cereals other than those listed under “Avoid”
- › Cooked cereals made without salt
- › Pasta (like macaroni, spaghetti, noodles)
- › Rice

If possible, choose crackers, breads, and grains with less than 5% DV of sodium. Also look for products with less than 8% DV of phosphorus, and less than 12% DV (less than 3 grams) of fibre per serving.

### Avoid

- › Whole grain breads
- › Baking mixes (like pancake and biscuit mixes)
- › Recipes that contain more than 1 tsp of baking soda per 8 servings
- › Bread stuffing mixes
- › Seasoned crumb coatings (like Shake ’n Bake®)
- › Canned pasta
- › Pre-seasoned pasta mixes (like Hamburger Helper™, Kraft Dinner®, Knorr® Sidekicks®)
- › Pre-seasoned rice
- › Dried soup or instant noodle mixes (like Mr. Noodles®)
- › Whole grain and bran cereals (like oat bran, natural bran, Kellogg’s® All-Bran Buds®, Kellogg’s® All-Bran Flakes®, Raisin Bran)
- › Quick-cooking and instant cereals
- › Salted crackers
- › Wheat germ

## Fruits

Fruits are a high source of potassium. To keep your blood potassium levels normal, **do not eat more than 3 servings a day from the ‘Best choices’ list.** Talk with your dietitian if you would like to try some of the fruits listed in the ‘Avoid’ list.

1 serving = 1/2 cup (125 ml) or 1 medium fruit or vegetable or 1/2 large fruit

### Best choices

- › Apples, applesauce
- › Blueberries
- › Blackberries
- › Canned fruits
- › Cherries
- › Clementines
- › Cranberries, cranberry cocktail
- › Grapes, grape juice
- › Lemons
- › Limes
- › Mandarin oranges
- › Peaches
- › Pears
- › Pineapple, pineapple juice
- › Plums
- › Raspberries
- › Strawberries
- › Watermelon

### Avoid

- › Apple juice
- › Avocados
- › Bananas
- › Cantaloupe
- › Coconuts, coconut milk, coconut water
- › Currants
- › Dried fruits (including figs, dates, raisins, and prunes)
- › Grapefruit juice
- › Guava
- › Honeydew melon
- › Kiwis
- › Mangoes
- › Nectarines
- › Oranges, orange juice
- › Papayas
- › Persimmons
- › Plantains
- › Pomegranates, pomegranate juice
- › Prune juice
- › Rhubarb
- › Tangelos

**Starfruit: People with kidney disease should not eat starfruit.** It can cause serious illness, including nausea (upset stomach), vomiting (throwing up), seizures, coma, and death.



## Vegetables

Vegetables are a high source of potassium. To keep your blood potassium levels normal, **do not eat more than 2 servings a day from the ‘Best choices’ list.** Talk with your dietitian if you would like to try some of the vegetables in the ‘Avoid’ list.

1 serving = 1/2 cup (125 ml)

### Best choices

Up to 2 servings of the following fresh or frozen vegetables a day:

- › Asparagus
- › Bok choy, raw
- › Chinese cabbage
- › Carrots
- › Cauliflower
- › Celery
- › Cucumbers
- › Eggplant
- › Garlic
- › Green beans
- › Leeks
- › Lettuce
- › Mushrooms
- › Onions
- › Peas
- › Potatoes, double boiled\*
- › Red and green peppers
- › Tossed salad
- › Turnips
- › Yellow beans
- › Vegetables canned without salt

\*It is OK to have one (1) serving of double boiled potatoes a day. Double boiling removes at least half of the potassium. **Double boiled potatoes are still high in potassium.**

### To double boil potatoes:

1. Peel and dice potatoes.
2. Place potatoes in clean water. Use 4 cups of water for every cup of potatoes.
3. Bring water to a boil. Drain.
4. Add clean water and cook until done.
5. Drain and serve.

## Avoid

- › Canned vegetables
- › Artichokes
- › Bamboo shoots
- › Beets, beet greens
- › Broccoli
- › Brussels sprouts
- › Bok choy, cooked
- › Chinese cabbage
- › Corn, fresh (1 ear)
- › Dandelion greens
- › Kohlrabi
- › Lima beans
- › Mustard greens
- › Parsnips
- › Potatoes (unless double boiled), including mashed and scalloped potato mixes
- › Pumpkin
- › Rutabaga (yellow turnips)
- › Sauerkraut
- › Seaweed
- › Spinach
- › Squash (acorn, butternut, buttercup, Hubbard)
- › Sweet potatoes
- › Swiss chard
- › Tomatoes (including paste and sauce)
- › Vegetable juices (like tomato, Clamato<sup>®</sup>, and V8<sup>®</sup>), including low sodium
- › Yams
- › Zucchini, cooked

## **Milk products**

Milk and milk products are a high source of phosphorus and potassium.

### **Best choices**

No more than one (1) serving (1/2 cup) a day of skim or 1% cow, goat, or soy milk.

Up to 2 servings a day of the following milk products:

- › Cheddar, Gouda, or mozzarella cheese
- › Cream
- › Cream cheese
- › Cottage cheese (10% or less DV of sodium)
- › Ice cream
- › Frozen yogurt
- › Yogurt
- › Rich's® Coffee Rich®
- › Rice Dream® Rice Drink
- › Silk® almondmilk
- › Sorbet or sherbet

### **Avoid**

- › Buttermilk
- › Cheddar cheese, unsalted
- › Malted milk
- › Commercial milk products with more than 10% DV of sodium
- › Processed cheese spread, like Cheez Whiz®
- › Processed cheese slices
- › Blue, feta, Romano, or Parmesan cheese

## Protein

You should eat protein foods at each meal. The amount of protein you need depends on your body size and the stage of your kidney disease. Your dietitian will help you decide how much protein is best for you.

You need \_\_\_\_\_ of protein foods each day.

### Common portions of high protein foods

Each of these has about the same amount of protein as 1 oz (28 g) of cooked meat:

- › 1/4 cup (2 oz/60 ml) tuna, salmon, or chicken
- › 1 egg
- › \*1 oz (28 g) cheddar (1 square inch)
- › \*1/4 cup (60 ml) low sodium cottage cheese
- › 1/3 cup (80 ml) raw tofu
- › \*2 tbsp (30 ml) peanut butter

A 3 oz (84 g) portion of meat is about:

- › 1 small boneless chicken breast (cooked)
- › 1 medium hamburger patty (cooked)
- › 1 pork chop (cooked)
- › 1 boneless steak the size of a deck of cards (cooked)
- › 1/2 cup (125 ml) raw, firm tofu

\*These foods are high in phosphorus. You should only have them with your phosphate binder, 2 to 3 times a week. Talk about this with your dietitian.

### Best choices

Choose fresh or frozen, unseasoned:

- › Beef
- › Chicken
- › Eggs
- › Fish
- › Salmon (canned is OK if it is rinsed well first and the bones are removed)
- › Tuna (canned is OK if it is rinsed well first)
- › Lamb
- › Peanut butter (unsalted)
- › Tofu
- › Turkey
- › Veal

**Note:** Limit shellfish (like shrimp and scallops), as it naturally contains salt.

## **Avoid**

All meat, fish, or poultry that has been smoked, cured, pickled, salted, or dried, like:

- › Bacon
- › Bologna
- › Corned beef
- › Ham
- › Kosher meats
- › Luncheon meats (like pepperoni and salami)
- › Sausages
- › Wieners
- › Sardines
- › Salt cod
- › Smoked herring
- › Canned meats (unless canned without added salt)

Other meats, like:

- › Liver
- › Scallops
- › Fish sticks
- › Frozen dinners
- › Pre-seasoned meats

Meat alternatives, like:

- › Canned beans
- › Canned stews
- › Nuts
- › Seeds
- › Lentils and beans

## **Fats**

### **Best choices**

- › Non-hydrogenated, salt-free margarine (like Becel®)
- › Canola, olive, and peanut oil
- › Low sodium mayonnaise
- › Oil and vinegar dressings with no added salt

## **Avoid**

- › Bacon fat
- › All gravies and gravy mixes
- › Products with trans fats
- › Bakery products (like pastries, cookies, and muffins)
- › Hard, hydrogenated margarine
- › Shortening
- › Butter
- › Lard

## **Sweets**

**If you have diabetes, talk with your dietitian about sweets.**

### **Best choices**

Anything not listed under 'Avoid'

### **Avoid**

- › Blackstrap molasses
- › Store-bought baked goods
- › Cake
- › Doughnuts
- › Chocolate
- › Fancy molasses
- › Specialty coffee drinks

## **Soups**

### **Best choices**

- › Unsalted homemade soup
- › Low sodium soups (5% or less DV of sodium is best.)
- › No salt added soups or broths

### **Avoid**

- › Canned soups
- › Dried soup or noodle mixes (like Mr. Noodles®), bouillon (like Oxo®), consommé
- › Split pea soup made with ham or ham bone
- › Bean and bacon soup

## Other

### Best choices

- › Mineral water
- › All pop not listed under 'Avoid'
- › Postum®, Ovaltine®
- › Coffee, tea
- › No salt added seasoning blends, like Dash™ and McCormick®
- › Herbs
- › Spices (no salt added)
- › Flavourings
- › Vinegar
- › Tabasco® sauce
- › Unsalted popcorn
- › Cream of tartar
- › Cocoa
- › Magic baking powder (talk with your dietitian about using baking powder to make sure that is OK for you.)
- › Unsalted nacho or corn chips

**Do not use more than 1 tsp (5 ml) a day** of mustard, ketchup, relish, barbecue sauce, Worcestershire sauce, or other condiments with less than 2.5% DV of sodium per serving.

### Avoid

- › Low sodium baking powder
- › Cream of tartar
- › Water treated with salt-based water softener
- › Colas (like Coca-Cola®, Pepsi®)
- › Sports drinks, like Gatorade®
- › Beer
- › Canned or bottled pasta sauces
- › Chinese food
- › Olives
- › Oyster sauce
- › Party snacks, like Cheezies®
- › Pickles
- › Pizza
- › Potassium-based salt substitutes (like NoSalt®, Nu-Salt®, Half Salt™)
- › Potato chips
- › Poultry and meat coatings
- › Salsa and taco sauces
- › Salt, any kind (including artisan salts, sea salt, and Himalayan salt)
- › Seasonings made with salt (like celery, garlic, and onion salts)
- › Ac'cent® Flavor Enhancer
- › Salted popcorn
- › Soy sauce

**Note:** If your blood phosphate and potassium levels are **normal**, you may be able to eat foods that are high in phosphorus or potassium **sometimes**. Talk about this with your dietitian.

## Sample meal plan

### Breakfast:

- › \_\_\_\_\_ egg(s)
- › 2 slices white bread (toasted)
- › 2 tsp (10 ml) margarine
- › 1/2 cup (125 ml) berries
- › 1/2 cup (125 ml) yogurt
- › 1/2 cup (125 ml) drink from 'Best choices' list

### Lunch:

- › \_\_\_\_\_ cup(s) tuna
- › 2 slices white bread
- › 1 to 2 tsp (5 to 10 ml) mayonnaise
- › 1 apple
- › 1/2 cup (125 ml) drink from 'Best choices' list

### Supper:

- › \_\_\_\_\_ oz chicken breast (cooked)
- › 1/2 cup (125 ml) double boiled potatoes
- › 1/2 cup (125 ml) cooked carrots
- › 1/2 cup (125 ml) cooked green beans
- › 2 tsp (10 ml) low sodium soft margarine or 1 tbsp (15 ml) sour cream
- › 1/2 cup (125 ml) canned peaches
- › 1/2 cup (125 ml) drink from 'Best choices' list

### Snacks:

- › 1 oz (28 g) cheddar cheese
- › 6 unsalted crackers
- › 1/2 cup (125 ml) drink of choice



## Recipes

### Balsamic vinaigrette

- › 1/3 cup (80 ml) chopped onion
- › 3 garlic cloves, minced
- › 1/4 tsp (1 ml) pepper
- › 3/4 cup (175 ml) balsamic vinegar
- › 1/2 cup (125 ml) olive oil
- › 2 tbsp (30 ml) honey or maple syrup
- › 2 tsp (10 ml) dry mustard or 2 tbsp (30 ml) Dijon mustard

Mix all ingredients together.

Nutrition information per serving (2 tbsp):

- |                      |                      |
|----------------------|----------------------|
| › Calories: 110      | › Carbohydrates: 6 g |
| › Sodium: 60 mg      | › Fibre: 0 g         |
| › Total fat: 10 g    | › Protein: 0 g       |
| › Cholesterol: 0 mg  | › Potassium: 14 mg   |
| › Saturated fat: 1 g |                      |

### Salt-free seasoning blend

- › 2 tbsp (30 ml) onion powder
- › 2 tsp (10 ml) garlic powder
- › 2 tsp (10 ml) paprika
- › 2 tsp (10 ml) dry mustard
- › 1 tsp (5 ml) thyme, crushed
- › 1/2 tsp (2 ml) pepper
- › 1/4 tsp (1 ml) dried parsley

Mix all ingredients together.

Use as desired.

Yield: about 1/3 cup (68 ml)

## Speedy barbeque sauce

- › 1 cup (250 ml) cider vinegar
- › 3/4 cup (175 ml) no salt added, canned crushed tomatoes
- › 3 tbsp (45 ml) packed brown sugar
- › 1 tbsp (15 ml) Worcestershire sauce
- › 2 tsp (10 ml) hot pepper sauce
- › 2 tbsp (30 ml) chopped garlic

1. Mix all ingredients together in a medium saucepan.
2. Bring to a boil over medium heat.
3. Lower heat and simmer for 20 minutes, stirring often.
4. Remove from heat and cool slightly before using.

Makes: 1 ½ cups

Nutrition information per serving (2 tbsp):

- |                      |                      |
|----------------------|----------------------|
| › Calories: 20       | › Carbohydrates: 6 g |
| › Sodium: 40 mg      | › Fibre: 0 g         |
| › Total Fat: 0 g     | › Protein: 0 g       |
| › Cholesterol: 0 mg  | › Potassium : 47 mg  |
| › Saturated fat: 0 g |                      |

## Example of a high sodium food to avoid

### Sample label for macaroni and cheese

<b>Nutrition Facts</b>	
Serving Size 1 cup (228g)	
Serving Per Container 2	
<b>Amount Per Serving</b>	
<b>Calories</b> 250	Calories from Fat 110
<b>% Daily Values*</b>	
<b>Total Fat</b> 12g	<b>18%</b>
Saturated Fat 3g	<b>15%</b>
Trans Fat 3g	
<b>Cholesterol</b> 30mg	<b>10%</b>
<b>Sodium</b> 470mg	<b>20%</b>
<b>Total Carbohydrate</b> 31g	<b>10%</b>
Dietary Fiber 0g	<b>0%</b>
Sugars 5g	
<b>Protein</b> 5g	<b>10%</b>
Vitamin A 4%	Vitamin C 2%
Calcium 20%	Iron 4%
*Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.	
	Calories 2,000 2,500
Total Fat	Less than 65g 80g
Sat Fat	Less than 20g 25g
Cholesterol	Less than 300mg 300mg
Sodium	Less than 2400mg 2400mg
Total Carbohydrate	300g 375g
Dietary Fiber	25g 30g

### Quick guide to % Daily Value (DV) of nutrients:

- › 5% or less is low
- › 15% (**10%** for sodium) or more is high

This label shows a high sodium food to avoid. Choose foods with at most 10% DV of sodium. Less is better.

**It can be hard to make changes to your eating habits. If you have questions, please ask to talk with a dietitian.**

**We are here to help you.**

Dietitian: \_\_\_\_\_

Phone: \_\_\_\_\_

**What are your questions?**

**Please ask a member of your health care team. We are here to help you.**

**In Nova Scotia you can call 811 to talk with a registered nurse about your health care questions 24 hours a day, 7 days a week.**

[illegible]

This pamphlet is for educational purposes only. It is not intended to replace the advice or professional judgment of a health care provider. The information may not apply to all situations. If you have any questions, please ask your health care provider.

Find this pamphlet and all our patient resources here:  
<https://library.nshealth.ca/Patients-Guides>

Connect with a registered nurse in Nova Scotia any time:  
Call 811 or visit: <https://811.novascotia.ca>

*Prepared by:* Nutrition and Food Services  
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