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Potassium and your kidneys

Potassium & CKD: How to manage potassium long term

Carolyn Feibig, MS, RD, LD, CCTD

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Webinar supported by: AstraZeneca

Housekeeping

- All attendees will be on '**mute**' throughout the duration of the webinar.
- The chat box has been disabled.
- If you have questions for the speaker or for the AKF team:
  - Please type it into the **Q&A box** in your control panel.
  - We will answer questions out loud during the Q&A portion of the presentation.

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Thanks to our speaker!

Carolyn Feibig, MS, RD, LD, CCTD

- Heart and Lung Transplant Dietitian with the Inova Health System
- Previously worked as Kidney Transplant Dietitian at the George Washington University Hospital
- Found her passion for renal nutrition when her nephew was born with only one working kidney
- Volunteers with the American Kidney Fund, American Association of Kidney Patients the National Kidney Foundation

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Objectives

- What is potassium and why is it important?
- Why do people with kidney dysfunction have problems with high potassium?
- What happens if it is too high?
- Old school vs New school – what's the difference?
  - How potassium binders can help you control potassium long-term
  - How to use food labels to track potassium in your diet
  - Tips for sticking to your potassium management plan

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Potassium and your kidneys

Introduction

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Potassium

- A mineral/electrolyte required for many essential body functions:
  - Intercellular fluid status
  - Blood pressure
  - Helps with muscle contraction
    - Including your heart

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Potassium

- An eating pattern high in potassium usually includes many vegetables, fruits, whole grains and legumes
  - Wide variety of vitamins and minerals
  - Fiber (insoluble and soluble)

- High potassium 'diets' are considered the most healthful
  - DASH
  - Mediterranean

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Benefits of potassium-rich eating

- Lowers blood pressure
- Decreases risk of stroke
- Improves cholesterol
- Decreases risk of other cardiovascular events
- Improves blood sugar

- Promotes kidney health
- Improves gut function
- Helps maintain a healthy weight
- Improves quality of life

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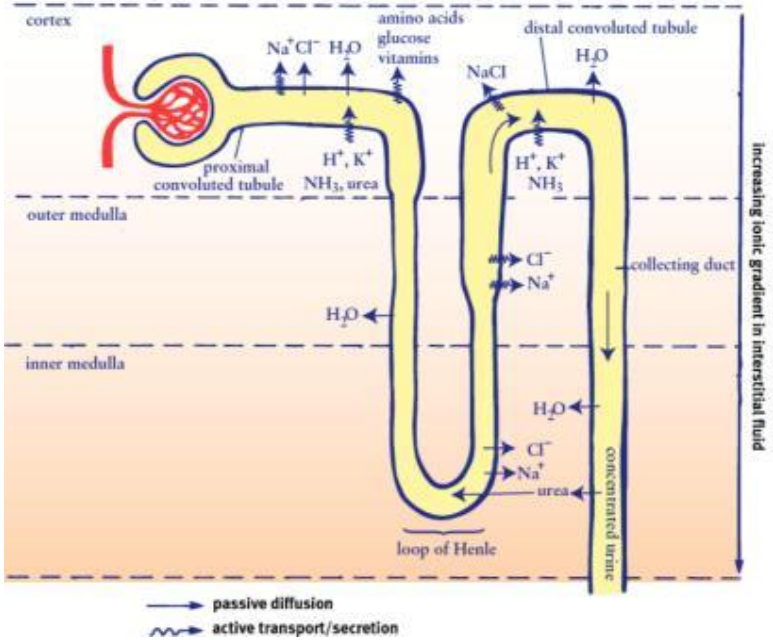
Chronic kidney disease (CKD) and potassium

- **Nephron** - the part of your kidney that "cleans" your blood
  - The **nephron** regulates how much potassium, sodium, water, and other essential components remain in our blood or excreted through urine



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High potassium (hyperkalemia)

- Potassium is main component that controls muscle function – including your heart
  - Too high potassium can cause serious cardiac events

- Some reasons for high potassium:
  - Medicines (ACE inhibitors, and others)
  - Chronic kidney disease (later stages)
  - Constipation

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CKD and potassium

- Leading cause of death for people with advanced stages of CKD is a cardiac event

- Hypothesis:
  - Many in the medical community believe the dialysis diet recommendations - high animal protein, but lower in vegetables, fruits, legumes and whole grains - *may* play a part in these cardiac events.

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CKD and potassium (old school)

- Limit intake of daily potassium
- High serum (blood) potassium =
  - Cardiac dysfunction 
  - Cardiac event
- Dialysis =
  - Removal of some of the extra potassium
  - Increased protein needs

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CKD and potassium (old school)

- Whole grains = ↑ phos & potassium
- Beans = ↑ phos & potassium
- Vegetables = ↑ potassium
- Fruits = ↑ potassium

Protein source

- Protein = animal protein is important

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CKD and potassium (old school)

- People on dialysis need more protein
  - Focus on animal proteins
    - Complete proteins
    - High in potassium
    - An egg is the gold standard (still)
- Avoid plant sources of protein
  - Whole grains, legumes

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CKD and potassium (old school)

Item	Serving size	Protein	Potassium
Steak (sirloin)	3 oz	26	323
Chicken (breast meat)	3.5 oz	29	240
Egg (large)	1	6	66
Fish (salmon)	3 oz	19	326
Black beans	½ cup	7	370
Great Northern beans	½ cup	10	460
Barley (cooked)	½ cup	12	416
Oatmeal (cooked)	¾ cup	4	122

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CKD and potassium (old school)

Item	Serving size	Protein	Potassium
Steak (sirloin)	9 oz (3x)	78	969
Chicken (breast meat)	9 oz (2.6x)	75	624
Egg (large)	2 (2x)	12	132
Fish (salmon)	3 oz	19	326
Black beans	¾ cup (1.25x)	8.75	462
Great Northern beans	¾ cup (1.25x)	12.5	575
Barley (cooked)	¾ cup (1.25x)	15	520
Oatmeal (cooked)	¾ cup	4	122

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Out with the *OLD* and in with the *NEW*

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CKD and potassium (new school)

- Individualized care / recommendations
- Not as protein focused (still important)
- Missing nutrients with the ‘old school’ diet
- What foods raise potassium
- New way of treating
- Quality of life

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New school – Medication

Advances in medication are playing a ***MAJOR*** role in managing potassium levels!

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Medications – Potassium binders

Medication	FDA approved	How it works	How fast does it work	Pill burden	Side effect
Sodium Polystyrene Sulfonate	June 1958	Binds to K, Mag and Ca in the GI tract	Hours to days	1 teaspoon - up to 4x/day	Diarrhea, long term use: intestinal necrosis
Sodium zirconium cyclosilicate (Powder-mixed in water)	May 2018	Exchanges potassium for a H & Na across the GI tract	1 hour	Initial 10g daily 5g every other day to 15g daily	Potential: swelling, mild/moderate low K
Patiromer (Powder – mixed in water)	October 2015	Exchanges K for Ca in the colon and binds mag	7 hours	8.4g daily	Constipation/diarrhea, abdominal discomfort, flatulence, low K and/or Mag

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CKD and potassium (new school)

- Over generalization of foods can make figuring out what to eat difficult
  - Food choices become extremely limited or, at least, confusing
    - For example:
      - Salad
      - Spinach
      - Tomatoes
- People want more plant forward options

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CKD and potassium (new school)

- Whole grains, vegetables, fruits & beans provide:
  - Fiber
  - Vitamins
  - Minerals
  - Antioxidants
  - Cardio protective qualities
  - GI regularity

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CKD and potassium (new school)

- ~~Whole grains =~~ ↑ ~~phos & potassium~~

New studies show only about 50% of the potassium in plant sources is able to be absorbed!
Whereas, most of the potassium in animal products is absorbed.

- ~~Fruits =~~ ↑ potassium

- Protein = Plant & animal protein are important

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CKD and potassium (new school)

- Quality of life improves with a more open eating pattern
- Heart health improves by adding:
  - Fresh/frozen vegetables and fruits
  - Whole grains
  - Plant proteins
    - Foods with carbohydrates help put the potassium INTO the cell
- GI regularity improves
  - Added fiber
- Lower phosphorus binder needs

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Daily potassium

- It is important to know your potassium numbers.
- A good way is to track how much potassium you are eating.
    - In a meal
    - Packaged food
    - Snacks
    - Use a recipe that lists the amount of potassium per serving
    - Read the nutrition label
- Keep a journal of your daily potassium intake and share it with your healthcare team.

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CKD and potassium

Know your potassium numbers

Low	less than (<) 3.5
Safe	3.5 – 5.0
Caution	5.1 -5.5
High	5.6 – 5.9
Very High	more than (>)6.0

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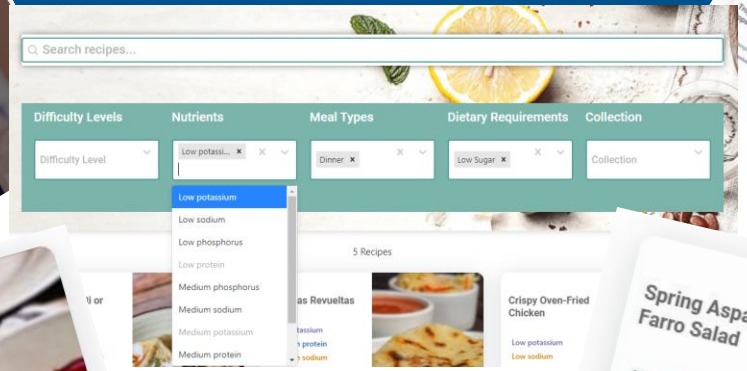
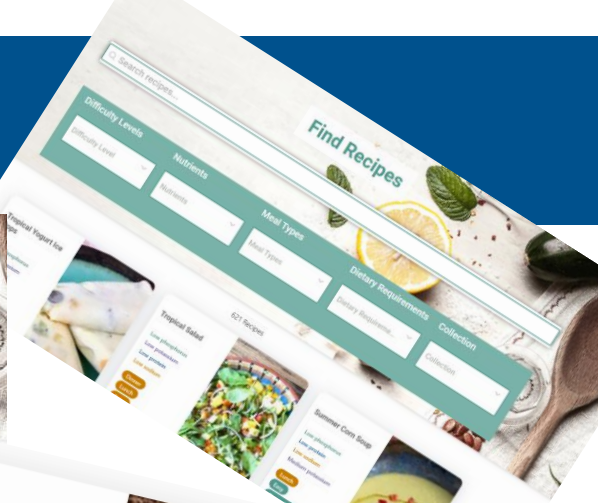
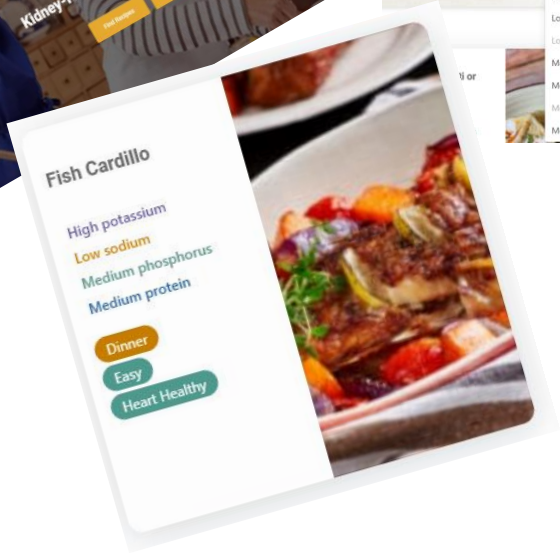
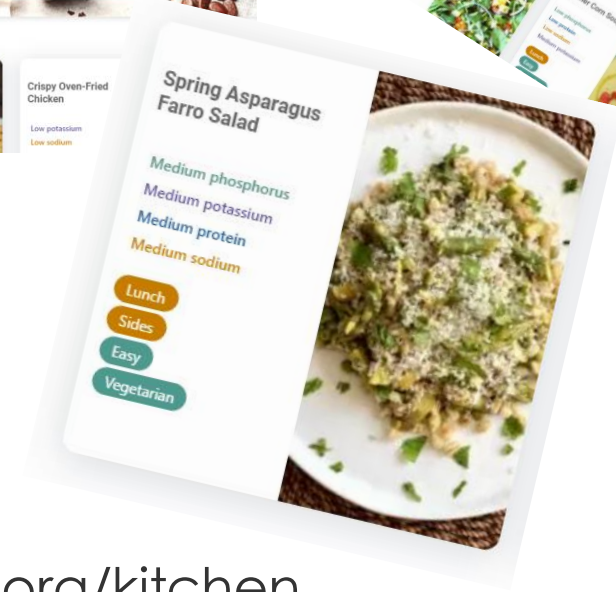
Kidney Kitchen









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www.kidneyfund.org/kitchen

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Kidney Kitchen

Spring Asparagus Farro Salad

Ingredients

¾ cup farro, quick cooking

¾ pound (342 grams) asparagus, sliced into 1-inch pieces

½ pound (227 grams) frozen peas

¼ cup mint, chopped

1 medium lemon, grated rind

1 ½ medium lemons, freshly squeezed

¼ cup olive oil

⅓ cup parmesan cheese, grated

Nutrition Info

Makes: 4 servings **Serving size:** 1 ¼ cups salad

Calories	351	Fat	17 g	Cholesterol	7 mg
		Saturated Fat	3 g		
		Trans Fat	0 g		
Carbohydrates	42 g	Protein	12 g	Sodium	166 mg
Sugar	5 g				
Fiber	10 g				
Calcium	129 mg	Phosphorus	274 mg	Potassium	512 mg

Instructions

1. Cook the farro per the package directions (about 10 minutes). Drain and set aside to cool.
2. Heat a quart of water in a medium saucepan and bring to boil.
3. Cook the asparagus in the water for 3 minutes. Add the peas for 30 seconds.
4. Drain asparagus and peas.
5. Transfer to a medium serving bowl. Cool and add cooked farro.
6. Add the mint and grated lemon rind. Mix well.
7. Combine lemon juice and oil in a measuring cup. Whisk to combine.
8. Pour over the salad and toss to mix well.
9. Sprinkle the parmesan cheese over the top and serve.

Cooking Tip

Be sure to prepare the salad just before eating to retain the bright green colors of the asparagus and peas. Refrigeration will fade their color and make them less appetizing.

Recipe Contributed by FamilyCook Productions

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Kidney Kitchen

Fish Cardillo

Ingredients

1 pound red snapper

4 teaspoons corn oil

¼ cup flour

1 large onion, sliced

3 or 4 medium-sized tomatoes, chopped

½ cup water

½ cup egg whites, beaten

Dash ground black pepper

15 stalks green onions, chopped

Instructions

1. Clean fish very well. Remove scales and gills and wash thoroughly. Drain and set aside.
2. Slice the raw fish into six pieces.
3. Heat oil in a frying pan over medium heat.
4. Place the flour into a bowl or plastic bag. Place the raw fish in the flour and cover the outside of each fish piece with flour.
5. Sauté fish until golden brown. Set aside on top of a paper towel.
6. Sauté onion and tomatoes. Add ½ cup of water.
7. Add the beaten egg whites and fish. Cover, and let simmer for 5 to 10 minutes.
8. Season with black pepper, and sprinkle with chopped green onions. Serve warm.

Cooking Tip

Recipe Contributed by the National Heart, Lung, Blood Institute; Healthy Heart, Healthy Family Manual for the Filipino Community

Nutrition Info

Makes: 6 servings **Serving size:** 1 piece fish with sauce

Calories	170	Fat	4 g	Cholesterol	45 mg
		Saturated Fat	1 g		
		Trans Fat	0 g		
Carbohydrate	13 g	Protein	20 g	Sodium	115 mg
Sugar	4 g				
Fiber	3 g				
Calcium	61 mg	Phosphorus	199 mg	Potassium	600 mg

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Nutrition Facts

8 servings per container

Serving size **2/3 cup (55g)**

Amount per serving

Calories **230**

	% Daily Value*
Total Fat 8g	**10%**
Saturated Fat 1g	**5%**
Trans Fat 0g	
Cholesterol 0mg	**0%**
Sodium 160mg	**7%**
Total Carbohydrate 37g	**13%**
Dietary Fiber 4g	**14%**
Total Sugars 12g	
Includes 10g Added Sugars	**20%**
Protein 3g	
Vitamin D 2mcg	10%
Calcium 260mg	20%
Iron 8mg	45%
Potassium 235mg	6%

* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

How many calories per serving. If you eat 2 servings (1-1/3 cups), you will consume 460 calories.

All nutrition values are based on the RECOMMENDED serving size.

How many mg of Potassium (K) per serving.

2 servings (1-1/3 cups) **470 mg K**

OR

½ serving (1/3 cup) **118 mg K**

The ingredient list is where you will find potassium and phosphorus additives.

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Work with your healthcare team

- When trying a new lifestyle, ***talk with your healthcare team!***
- Talk to your doctor about potassium binders.
- Talk with your dietitian about adding more vegetables, whole grains and beans.
- Know your potassium numbers.
- Use trusted sources like AKF's Kidney Kitchen
  - **www.kidneyfund.org/kitchen**

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Questions?

Please submit your questions for the speaker using the Q&A feature.

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Thank you!

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