

**beyond
bananas** 

Potassium and your kidneys

Potassium and kidney disease: What you need to know

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Thanks to our speaker!

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- Member of the international steering committee of the World Kidney Day
- Immediate past president of the International Society of Renal Nutrition & Metabolism

What is potassium?

- Potassium is a mineral and electrolyte.
- It is found in most foods and your body needs it for many things
- Potassium plays an important role in helping your muscles expand and contract.
 - Your heart is a muscle; so, when your body's potassium is at a healthy level, it helps your heart to beat the right way.

HEALTH BENEFITS OF POTASSIUM

Organic Facts

Boosts nervous system			Prevents muscle cramps
Maintains optimal fluid balance			Maintains electrical conductivity in brain
Improves bone health & muscle tissue growth			Stabilizes blood sugar levels & blood pressure
Keeps brain functioning normal & prevents strokes			Maintains optimal muscle & nerve function

www.organicfacts.net

What is hyperkalemia?

- High potassium is called **hyperkalemia**.
- Hyperkalemia is a chronic condition, meaning it is long-lasting.
- Can be caused by kidney disease.
- Lowering potassium should be a long-term goal, not a short-term objective.



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Potassium and your kidneys

Relationship between high potassium and kidney disease

- If you have kidney disease, you are at risk for high potassium because your kidneys cannot remove the extra potassium in your blood.

Symptoms of high potassium

- Feeling tired or weak
- Feeling sick to the stomach (nausea)
- Muscle pains or cramps
- Trouble breathing, unusual heartbeat, chest pains

HYPERKALEMIA ↑

- * Muscle Twitches → Cramps → Paresthesia
- * Irritability & Anxiety
- * ↓BP
- * EKG Changes
- * Dysrhythmias - Irregular Rhythm
- * Abdominal Cramping
- * Diarrhea



Flat P
Wide QRS
Peaked T
Prolonged P-R
Depressed ST

Consequences of not managing high potassium

- Managing high potassium is important if you want to protect your heart.
- Having too much potassium in your blood can be dangerous.
- High potassium can even cause a heart attack or death!

Measuring your potassium level

- Your doctor will take a blood test to measure your potassium level.
- Potassium levels can vary day to day based on:
 - what you ate
 - what you drank
 - how regularly you take your medicines
 - how well your kidneys are working

Tracking your potassium level

- Track all the foods you eat that may contain potassium.
 - Even one single food or drink item can make a difference.
 - Food shoppers and food preparers must play a central role in tracking potassium intake.
- Keep a daily log of when you take your potassium binder.

Dietary potassium restrictions

- In the general population (no CKD):
 - High potassium diet is beneficial for hypertension and cardiovascular events
 - Minimal concern for hyperkalemia
- For CKD patients with risk for hyperkalemia:
 - Dietary potassium restrictions often start before kidney failure.
 - Restrictions are reinforced as patients transition to dialysis.
 - Recommended potassium intake depends on eGFR.

Dietary potassium restrictions

- Significant uncertainty about dietary potassium restriction in CKD
 - Ideal amount
 - Net effect on health outcomes

Dietary potassium intake recommendations for adults in the general population and in people with CKD

Source	Recommended g/day
Institute of Medicine (2005)	4.7 ^a
World Health Organization (2012)	3.5 ^b
K/DOQI (2004)	
CKD G1-G2	> 4.0
CKD G3a-G4	2.0–4.0
NEJM 2017 paper:	
eGFR>30	4.7
CKD 4 and 5	<3
Expert opinion^c	
HD	2.7–3.0
PD	3.0-4.0
Hyperkalemia	< 3.0

Dietary approach in CKD

Dietary constituent	Normal kidney function w/ ↑ CKD risk	Mild to moderate CKD	Advanced CKD	Transition to dialysis	Ongoing dialysis or any stage with PEW
Protein (g/kg/d)	<1.0	<1.0	0.6-0.8	0.6-0.8	1.2-1.4
Sodium (g/d)	<4	<4	<3	<3	<3
Potassium (g/d)	4.7	4.7	<3	<3	<3
Phosphorus (mg/d)	<1000	<800	<800	<800	<800
Calcium (mg/d)	1000-1300	800-1000	800-1000	800-1000 or less	<800
Fibers, alkali, plant-based foods (g/d)	25-30	25-30 or more	25-30 or more	25-30 or more	25-30 or more
Energy (kcal/kg/d)	30-35	30-35	30-35	30-35	30-35
Fats	Mostly mono- & polyunsaturated	Mostly mono- & polyunsaturated	Mostly mono- & polyunsaturated	Mostly mono- & polyunsaturated	Mostly mono- & polyunsaturated

Source: Kalantar-Zadeh and Fouque. *N Engl J Med (NEJM)*, Nov 2, 2017

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Dietary approach in CKD

Seminars in Dialysis

== VIEWS, VISIONS AND VISTAS IN DIALYSIS ==

Dietary Restrictions in Dialysis Patients: Is There Anything Left to Eat?

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High potassium foods

- A food with **250 mg (milligrams)** of potassium (or more) per serving is considered a **high potassium food**.
- If you are on dialysis or your doctor has recommended that you eat low-potassium foods, you should aim for a daily potassium goal of 2,500 mg and no more than 3,000 mg per day.
- Your doctor or dietitian may adjust these goals to fit your needs.

High potassium foods



High Potassium Foods (251 mg or more per serving)

Food	Serving Size	Potassium (mg)
Canned Navy Beans	½ cup	587
Cod Fish	3 oz	440
Tomato Paste	½ cup	1228
Raisins	½ cup	545
Avocado	½ cup	558
Beet greens	½ cup	650
Sweet Potato	1 medium sized	855



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Potassium Rich Foods

Low potassium diet

<2-3 g (<50-75 mEq)

(whereas the recommended potassium intake is 4.7 g/day)

Low potassium foods

- **Low-potassium** foods and drinks are those with **no more than 100 mg** of potassium per serving.
- Your doctor or dietitian may suggest you eat foods that are low in potassium if you tend to have too much potassium in your blood.

Low potassium foods

Low Potassium Foods (150 mg or less per serving)

Food	Serving Size	Potassium (mg)
Cream Cheese	1 oz	17
Fresh Egg	3 oz	70
Cucumber, with peel	½ cup	75
Lettuce	½ cup	43
Corn Flakes®	1 cup	22
White Rice	1/2 cup cooked	33
Bread	1 slice, white/ wheat	50

Potassium binders

- Potassium binders work by sticking to the potassium in your body and preventing some of it from being taken into your bloodstream.
- Talk to your healthcare provider about finding a potassium binder that is right for you.

Other medicines that can affect your potassium level

Always talk to your doctor about the different medicines you are taking. The following may raise your potassium levels. Examples include:

- RAASi: ACEI and ARBs
- NSAID
- Potassium-sparing diuretics: spironolactone, eplerenone
- Betablockers (non-selective and B2)
- Trimethoprim, Pentamidine
- Heparin (Remember SC Heparin!!)
- Digoxin (toxic levels)
- Succinylcholine (intubated in ER!)
- Calcineurin Inhibitors: Cyclosporine A, FK (Tacrolimus)
- Potassium: KCl, K-Dur

Key Take-aways

- Manage potassium through diet and medicine.
- Take potassium binders as prescribed.
- Talk to your doctor about medicines you are taking that may affect your potassium levels.
- Work with your doctor and dietitian to create a potassium management plan that works best for you.

Additional Resources

Beyond Bananas Campaign: KidneyFund.org/BeyondBananas

- What is potassium:
 - <https://kitchen.kidneyfund.org/general-nutrients/potassium/>
- Potassium food guide:
 - <https://kitchen.kidneyfund.org/guides-to-help-you-cook-and-shop/potassium-food-guide/>
- Potassium tracker:
 - <https://kitchen.kidneyfund.org/guides-to-help-you-cook-and-shop/potassium-tracker/>

Potassium Food Guide

Protein

Low potassium <small>100 mg potassium</small>			High potassium <small>250 mg potassium</small>		
Food	Serving size	Potassium (mg)	Food	Serving size	Potassium (mg)
Beans, canned			Beans		
Black	1/2 cup	100	Black	1/2 cup	370
Chickpeas	1/2 cup	100	Chickpeas	1/2 cup	370
Garbanzo	1/2 cup	100	Garbanzo	1/2 cup	370
Meat			Meat		
Beef, lean	3 oz	100	Beef, lean	3 oz	100
Chicken breast	3 oz	100	Chicken breast	3 oz	100
Seeds			Seeds		
Flaxseed	1 oz	100	Flaxseed	1 oz	100
Sunflower	1 oz	100	Sunflower	1 oz	100
Vegetables			Vegetables		
Spinach	1/2 cup	100	Spinach	1/2 cup	100
Fruit			Fruit		
Apple	1 medium	100	Apple	1 medium	100
Banana	1 medium	100	Banana	1 medium	100
Orange	1 medium	100	Orange	1 medium	100

Note: This is a partial view of the guide. An orange arrow points to the 'Download Here' link.

MY DAILY POTASSIUM TRACKER

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY	WEEKLY TOTAL	GOAL
Example:	Food	mg potassium	mg potassium	mg potassium	mg potassium	mg potassium	mg potassium	mg potassium	mg potassium
	M								02/00
	T								02/00
	W								02/00
	T								02/00
	F								02/00
	S								02/00
	S								02/00

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The logo for 'beyond bananas+' is located in the top left corner. It features the text 'beyond bananas+' in white on a dark grey background. Below the text is a white horizontal line, and underneath that, the tagline 'Potassium and your kidneys' is written in a smaller white font. To the right of the text is a stylized yellow banana with a green stem and a small white leaf.

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Thank you!

Submit your questions now!

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Join us for our next webinar!



Chef Linda Blaylock

Caregiving: How you can navigate kidney-friendly cooking

Wednesday, February 19, 2020 from 12:00 – 1:00 p.m. EST

Join our webinar to hear Chef Linda share:

- Her personal story from caregiver to culinary school
- Tips for kidney-friendly food shopping
- Resources for kidney-friendly cooking

Go to www.KidneyFund.org/webinars to
learn more and register!