

Potassium and kidney disease: What you need to know

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Thanks to our speaker!



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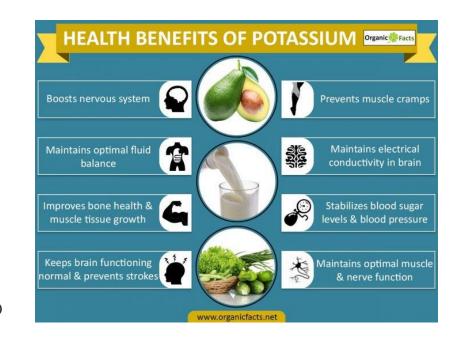
- Board certified physician in Internal Medicine,
 Nephrology and Pediatrics
- Professor and chief of Nephrology & Hypertension at the University of California, Irvine
- Member of the international steering committee of the World Kidney Day
- Immediate past president of the International Society of Renal 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.







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.





Relationship between high potassium and kidney disease

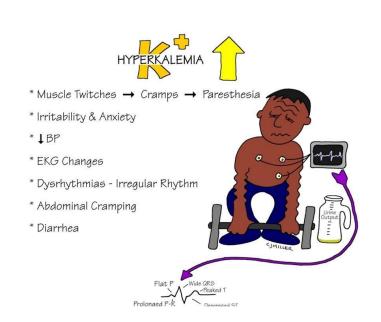
 If you have kidney disease, you are at risk for high potassium because your kidneys cannot remove the extra potassium in your blood.





Symptoms of high potassium

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







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)	<mark>4.7</mark> 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	<mark>4.7</mark>
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



Dietary approach in CKD

<u>Seminars in Dialysis</u>

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





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)

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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/generalnutrients/potassium/
- Potassium food guide:
 - https://kitchen.kidneyfund.org/guides-to-helpyou-cook-and-shop/potassium-food-guide/
- Potassium tracker:
 - https://kitchen.kidneyfund.org/guides-to-helpyou-cook-and-shop/potassium-tracker/



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Thank you!

Submit your questions now!





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

