

Eating Healthy with Diabetes and Kidney Disease

Lori Martinez-Hassett, RD, CSR

Thanks to our speaker!



Lori Martinez-Hassett, RD, CSR

- Registered dietitian at Satellite Healthcare
- Her nutrition career and interest in diabetes started well before her professional career, when a beloved aunt living with type 1 diabetes taught her the art of carb counting and introduced her to an insulin pump.

Learning Objectives

- Review common lab work for kidney patients and how it affects food choices
- Learn how kidney disease affects blood sugar and diabetes management
- Understand causes of weight changes due to kidney disease

Food Frustration is Real

- Well, what can I eat?
- I can't have that, it's on "The List"
- Can you just give me a meal plan to follow?



There is No One “Renal Diet”

- Nutrition needs differ from person to person
- Nutrition needs vary depending on stage of CKD
- Diet restrictions for certain nutrients like potassium, phosphorus and sodium are common
- Recommendations are individualized
- See a dietitian or ask a doctor about education classes

The 3 Ps of Kidney Nutrition

- Protein
- Potassium
- Phosphorus



Function of Protein

Protein is needed for good health and...

- To grow our hair and nails
- Build/repair muscles, connective tissue
- Heal wounds
- Make hormones and enzymes
- Make antibodies to fight infections

Protein In Our Diet

- Animal: meat, fish, chicken, eggs, milk
(also referred to as High Biological Value—HBV)
- Vegetable: beans, lentils, nuts and seeds
- Small amounts of protein in grains: cereal, bread, rice, pasta, etc.



Protein In Our Diet

- Eat enough, but not too much
- Too much protein is an added burden on the kidneys
- Many people with diabetes spill protein into their urine = Proteinuria
- Higher levels of proteinuria are associated with faster decline in kidney function

Protein for Health: Challenges

- As kidney function declines people may have symptoms that make it hard to eat:
 - Decreased appetite
 - Taste changes
 - Nausea, vomiting

Protein for Health: Challenges

- Proper diet is needed to maintain albumin level (protein in blood)
 - Target: albumin → 4.0 is ideal
- Low albumin levels lead to infections & hospitalizations
- Also, infections, inflammation, surgeries, and fluid retention contribute to low albumin levels

Protein Recommendations

- If you eat meat, about $\frac{1}{2}$ of protein should be from HBV protein (meat, poultry, fish, eggs, milk)
- Vegetarian diets are healthy
 - Note* that protein from beans, lentils & nuts also contain potassium and phosphorus
- A dietitian can help you plan a vegetarian diet

Protein Recommendations

- Not on dialysis (Stage 4): eat LESS protein
 - 0.8 grams/kg
- On dialysis (Stage 5): eat MORE protein
 - 1.2-1.3 grams/kg

Example of Protein Recommendations

Pre-dialysis:

- Smaller person
- 135 lbs (61 kg)
- 50 g protein/day
- 4 oz/day from HBV
(meat, chicken, fish, eggs)

On Dialysis:

- Smaller person
- 135 lbs (61 kg)
- 79 g protein/day
- 6 oz/day from HBV

Example of Protein Recommendations

Pre-dialysis

- Larger person
- 200 lbs (91 kg)
- 73 g protein/day
- 5-6 oz/day from HBV
(meat, chicken, fish, eggs)

On Dialysis

- Larger person
- 200 lbs (91 kg)
- 109 g protein/day
- 8-9 oz/day from HBV

Potassium

- The muscles & nerves need potassium to work
- High or Low potassium levels can be dangerous and affect your heart
- Healthy kidneys keep potassium balanced
- When kidneys don't work, potassium may go up

Causes of Changes in Potassium Level

- Decline in kidney function
- GI problems: poor intake, vomiting, diarrhea
- Various medications
- Salt substitutes contain KCl (potassium chloride)
- Food choices
- Dialysis choice

Potassium In Our Diet

- Eat enough, but not too much
- Potassium found mainly in fruits & vegetables
 - (also beans, lentils, nuts, milk/milk products, salt subs)
- 5 Servings/day of fruits & vegetables
- Serving size = similar to diabetic exchanges:
 - ½ cup portions (light bulb sized fruit or starchy vegetable) = 15 g carb
 - 1 cup non-starchy vegetables = 5 grams carb

Potassium In Our Diet

Higher Potassium Foods

- Oranges
- Orange Juice
- Bananas
- Plantains
- Coconut Milk/Water
- Persimmons
- Pomegranates
- Dried Fruit
- Mango
- Papaya
- Tomatoes
- Potatoes (chips, fries, hash browns),
- Yams
- Pumpkin
- Winter Squash
- Greens
- Artichokes
- Nopales
- *Dried Beans**
- *Lentils**
- *Peas**
- *Nuts**
- *Milk**



**Contains potassium & phosphorus*

Potassium In Our Diet

Lower Potassium Foods:

- Apples
- Cranberries
- Blueberries
- Raspberries
- Grapes
- Pears
- Plums
- Fruit Cocktail
- Lemon
- Limes
- Rhubarb
- String Beans
- Cabbage
- Carrots
- Corn
- Cucumbers
- Jicama
- Eggplant
- Peppers
- Onions
- Eggplant
- Cauliflower
- Turnips
- Water Chestnuts



Potassium Monitoring

- Potassium levels can change
- “Too High” or “Too Low” is dangerous
 - Symptoms are irregular heartbeat, muscle weakness
- Lab target: 3.5-5.0 mg/dL
- Type of dialysis may affect level
 - Lower levels in home dialysis (PD) vs. hemodialysis
- Consult with doctor or dietitian

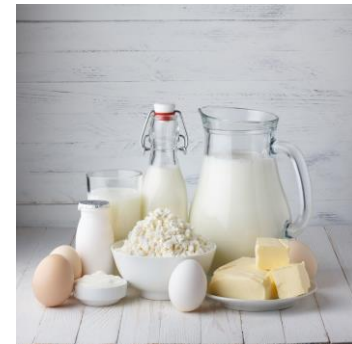
Phosphorus

- Phosphorus (along with calcium) are minerals that keep our bones and teeth strong
- Healthy kidneys keep phosphorus and calcium in balance in the blood
- Phosphorus levels go up as kidney function goes down, causing weaker bones and hardening of the heart and blood vessels

Phosphorus In Our Diet



- Processed foods, fast food, cola drinks
 - Contain “inorganic phosphates” or phosphorus additives
 - Ex: deli meats, sausage, ham, frozen entrees, baking mixes
- Protein foods:
 - Milk, cheese, yogurt, and milk products
 - Meats and animal protein
 - Dried beans, legumes, nuts



Phosphorus In Our Diet

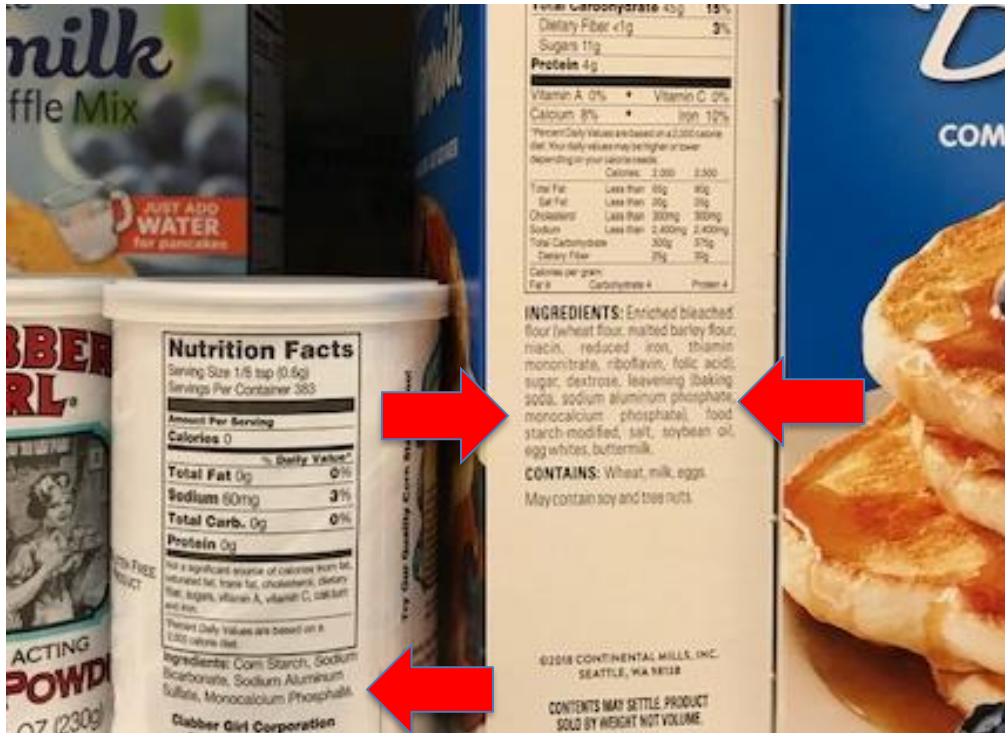
- Inorganic phosphates: >90% absorption
 - Not on nutrition facts label
 - Found in ingredient list: Look for “Phos”
 - **Phosphoric Acid**, monocalcium **phosphate**
- Meats/Animal protein: 50% absorption
- Beans/Legumes: <40% absorption

Hidden Phosphorus

Find the
Phosphorus...



Hidden Phosphorus



Leavening in baked goods:

- Monocalcium Phosphate
- Sodium Aluminum Phosphate

Phosphorus Monitoring

- Changes in phosphorus happen early in CKD
- Higher levels lead to weak bones & calcification
- In general, phosphorus target is <5.0
 - 2.5-4.5 mg/dL in early stages of CKD
 - 3.5-5.5 mg/dL CKD Stage 5

Managing Phosphorus

- Management is important & challenging
 - Few symptoms
 - Phosphorus is in many foods
 - High levels linked with poor outcomes: higher risk of fractures and heart calcification
- Diet restriction
- Medication: phosphate binders taken with meals
- Dialysis

In Review: 3 P's of CKD Nutrition

- **Protein (Albumin): Stay healthy fight infections**
 - Avoid excess protein in diet; Eat enough, but not too much
 - Medications to help manage proteinuria (ACE/ARBs) also protect the heart
- **Potassium: Can affect your heart rhythm**
 - If blood levels are high, then restrict high potassium foods
 - If blood levels are low, then eat more high potassium foods, be aware of carb
- **Phosphorus: Affects bone & heart health**
 - Food choices often recommended to stabilize glucose may be high in phos (cheese for a snack, milk at bedtime) may be high in phosphorus
- **Target: in the 4s**

CKD & Diabetes: Considerations

- A1c is a diabetes blood test
- Its accuracy may be affected by anemia
 - Low Hemoglobin and iron deficiency
 - Shorter red blood cell life span
 - A1c may appear normal despite hyperglycemia
 - Continue to check blood sugar
 - A1c target: 7% up to 8% to avoid low blood sugar

CKD & Diabetes: Considerations

- Causes of low blood sugar
 - Decreased intake due to symptoms of kidney disease
 - Decreased appetite
 - Nausea
 - Taste changes
 - Decreased clearance, or time it takes for medication to leave the body, of medication when GFR <50
 - Dose of medication and insulin can be decreased
 - Higher risk with long acting meds
 - Ex: Glyburide (long acting) often changed to Glipizide (short acting)

CKD & Diabetes: Considerations

- Sulfonurias: Glipizide dose may be decreased
- Insulin: dose may be decreased
- Metformin: stopped when GFR <30 or creatinine >1.4
- TZD (Glitazones): stopped in advanced CKD
- New classes of medications: GLP-1 & DPP-4
 - Decreased risk of cardiovascular death
 - Low risk of hypoglycemia + helps with weight loss

CKD & Diabetes: Considerations

- Dialysis: Peritoneal dialysis (PD) vs. Hemodialysis
 - PD is done at home daily
 - PD solution (dialysate) contains dextrose which may affect blood sugars
 - Medication or insulin dosing may need to be adjusted

CKD & Weight Changes

- Kidneys remove both waste products and fluid
- As kidney function declines...
 - Fluid can build up and cause weight gain
 - Waste products increase and cause symptoms contributing to weight loss:
 - Decreased appetite
 - Taste changes
 - Nausea/vomiting

Dry Weight vs. Fluid Weight

- Dry weight: weight without fluid retention (build-up of fluid inside body)
 - No swelling, not short of breath, BP better controlled
 - Changes in dry weight occurs slowly
 - Dry weight is not affected by dialysis

Dry Weight vs. Fluid Weight

- Fluid weight gain due to fluid retention
 - Clearance from kidneys decreases: pee less
 - Worsens with high salt and/or fluid intake
 - Symptoms: swelling, shortness of breath, rapid weight changes.
 - Report symptoms to your doctor
 - Fluid weight strains the heart, leads to congestive heart failure

Weight Gain & Sodium

- Limit sodium to 2000 mg per day
- Read food labels
 - No added salt and low sodium better
 - Reduced sodium next best, may still be high in sodium
- Cook at home when possible
- Eating out: ask for no added salt or dressing on the side, avoid soups and sauces



Sodium – Less is Better



- 2400 mg/day for all Americans
- 1 tsp = 2400 mg
- $\frac{1}{4}$ tsp = 560 mg*
*Sodium content of salt varies only slightly between products
Sea salt is not lower in sodium!

Benefits of Weight Loss

- First line therapy for diabetes is Therapeutic Lifestyle Changes (TCL)
- TLC: Includes diet & exercise
- Improved blood sugars & blood pressures
- Transplant criteria
 - Most centers require BMI <35
 - BMI >25 is overweight, BMI >30 is obese

Review

- Kidney disease affects...
 - Clearance of fluid: sodium & fluid restrictions
 - Clearance of some nutrients: restrictions for potassium and phosphorus
 - Hemoglobin, which in turn may change A1c results: continue glucose checks
 - Clearance of meds: dosing may be decreased or stopped altogether. Talk to doctor if you have lows!

Questions?



Join us for our next webinar!



Chasity Shugart, LCSW-S
Medical Social Worker
Wellbound South Austin

Anxiety and kidney disease

Thursday, December 13, 2018 from 2:00 - 3:00 p.m. EST

Join us to hear more about:

- How anxiety occurs
- What anxiety can look and feel like in a person's life
- How anxiety can affect quality of life for kidney patients who are pre-dialysis, on dialysis, and preparing for transplant
- Tips and resources to fight and overcome anxiety

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