



Diet & Kidney Disease

Who Are Renal Dietitians & What Do They Do?

- Have special training in diet & kidney disease
- Teach you how to eat well with kidney disease:
 - Personalize diet
 - Develop meal plan
 - Review lab tests & advise changes
 - Share tips for managing fluid

I Don't Have a Renal Dietitian. What Can I Do?

Ask your doctor for a referral to **medical nutrition therapy** &/or **diabetes self-management training**

- Can keep kidneys healthier longer
- Usually covered by Medicare &/or insurance

You will have a renal dietitian if you need dialysis or transplant

Why Is Diet Such an Important Part of My Treatment?



Your diet can help you:

- Keep kidney function longer
- Prevent symptoms
- Prevent complications
- Control blood sugar, blood pressure & weight
- Balance nutrients you need

What Nutrients Are Important?

- Calories
- Protein
- Sodium
- Fluid
- Potassium
- Phosphorus
- Vitamins



Ask how much is right for you; transplant or more dialysis often means a more normal diet.

What Should I Know about Calories?

- Calories = energy
- Come from 4 food types:
 - Carbohydrates
 - Proteins
 - Fats
 - Alcohols
- Weight is based on calories taken in & burned
- “Sugar-free” products may have calories; read labels

What Should I Know about Protein?

- Builds muscles & maintains tissues
- Has biological value (higher in animal sources than plant sources)
- Burned for energy without other calorie sources
 - Too little makes you weak
 - Too much overworks kidneys

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Why Is Protein Important When Kidneys Are Damaged?

- Protein becomes waste product called urea (seen on labs as **B**lood **U**rea **N**itrogen)
- Healthy kidneys get rid of urea in urine
- High BUN causes:
 - Ammonia breath
 - Meat to taste metallic
 - Poor appetite
 - Other symptoms
- Dialysis & transplant lower BUN



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What Are Good Sources of Protein?



- Red meat
 - Poultry
 - Fish
 - Eggs/egg whites
- Vegetarians can follow a kidney diet, too

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What Should I Know about Sodium (Na)?

- In table salt & many foods
- Controls body fluid & blood pressure
- Too much causes thirst, swelling & may cause high blood pressure
- Gaining too much fluid & pulling off too much too fast can cause dialysis cramping

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How Do I Limit Sodium (Na)?

Nutrition Facts	
Serving Size 1 cup (228g)	
Servings Per Container 2	
	% Daily Value*
Total Fat 12g	18%
Saturated Fat 3g	15%
Trans Fat 3g	
Cholesterol 30mg	10%
Sodium 470mg	20%
Total Carbohydrate 31g	10%



- Avoid "lo salt"
- Avoid adding salt
- Limit processed & fast foods (read meat label for "enhanced")
- Use non-salt spices
- Limit cured foods (ham, bacon, etc.)
- Oil is healthier than butter or margarine
- Choose butter/margarine with less sodium
- Water softeners, bottled water may add Na

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What Are Some Seasonings I Can Use to Flavor My Food?



- Fresh garlic/onions, garlic/onion powder (not salt)
- Salt-free seasonings (such as Mrs. Dash)
- Fresh jalapeños
- Pepper
- Herbs
- Flavor extracts

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12 of 38

What Should I Know about Fluid?



- Anything liquid at room temperature: gelatin, soups, ice cream, ice
- Causes swelling, weight gain, may make it uncomfortable on dialysis and cause “dialysis hangover” after
- Too much can damage your heart

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What Are Tips to Limit Fluid?

- Use fluid from pre-measured source
- Drink only when thirsty
- Control blood sugar
- Avoid salty/sugary food
- Rinse/spray mouth
- Use mouth-moistening products
- Take meds at meals, if allowed
- Use small cups
- Brush teeth for dry mouth
- Ice chips – melt & measure for fluid amount
- Freeze grapes to eat
- Suck hard candy (sugar-free if diabetic)
- Chew gum
- Stay active

2 cups fluid weighs about 1 pound

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What Should I Know about Potassium (K)?

- Found in most foods, especially fruits and vegetables
- Helps your muscles & nerves work
- Too little or too much makes your muscles weak & can stop your heart
- On food labels starting in 2018

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What Are Some High Potassium Foods?

- Tomatoes
- Oranges, juice
- Potatoes, chips
- Greens
- Chocolate
- Bananas
- Avocados
- Salt substitutes
- Milk/milk products
- Prunes, juice



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How Do I Know if My Potassium Is High or Low?

- Check your lab values for potassium (K)
- If high or low, you may:
 - Feel weak
 - Have an irregular heartbeat
 - Have no symptoms at all
- Very low or high K is dangerous

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How Do I Control My Potassium?

- Ask for your labs so you can track it (K) in your medical journal
- Follow your potassium diet
- If limiting potassium, “dialyze” potatoes – peel, cut, soak & cook in large pot of water, drain & cook more

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What Do I Need to Know About CKD & Bone & Heart Health?

- When kidneys are healthy parathyroid hormone (PTH) & vitamin D keep calcium & phosphorus balanced in blood for healthy bones, teeth, muscles, nerves & tissues
- When kidneys are damaged, the body can't convert vitamin D from sun, food & supplements to the form your body can use so calcium & phosphorus may not stay balanced
- When calcium & phosphorus are out of balance, PTH goes up pulling calcium from bones making them brittle & blood vessels & other tissues stiff
- Follow your diet & take drugs as prescribed to keep your labs for calcium, phosphorus & PTH where they need to be

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What Should I Know about Phosphorus (Phos or PO₄)?

- Found in many foods (fruits have little phosphorus)
 - 40-50% of plant phosphorus is absorbed
 - 60% of animal phosphorus is absorbed
 - 98-100% of phosphorus in additives, preservatives, fast foods, convenience foods, canned & bottled drinks, enhanced & processed meat to improve taste, texture, & shelf life is absorbed
- Too much phosphorus pulls calcium from bones
- High phosphorus levels in the body increases:
 - PTH, which can cause weak bones
 - Risk of heart disease
- **Cooking & eating fresh is best!**

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20 of 38

What Are Some High Phosphorus Foods?



- Milk/milk products
- Dried beans/peas
- Baking mixes
- Bran
- Nuts/peanut butter
- Chocolate
- Colas/dark sodas
- Beer
- Some other drinks

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21 of 38

How Do I Know If My Phosphorus is High or Low?

Check labs for Phos or PO₄

- | | |
|---------------------|------------------------|
| • High: | • Low: |
| - Itching | - Appetite loss |
| - Achy joints/bones | - Achy joints/bones |
| - Bone fractures | - Anxiety/irritability |
| - Muscle weakness | - Confusion |
| - Muscle spasms | - Fatigue |
| - Rash | - Irregular breathing |
| - Numbness/tingling | - Numbness/tingling |

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How Can I Control My Phosphorus?

- Track your labs
- Follow your phosphorus diet
- Take phosphate binders w/meals & snacks as directed
- Drink water mostly (not vitamin water), limit other drinks
- Clear sodas contain less phosphorus
- May or may not be on food labels

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What Should I Know about Vitamins?

- Your diet may not have all you need
- Dialysis & some drugs remove some
- You can get too much of some
- Only take one your doctor prescribes
- Again, avoid vitamin water

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How Do I Read a Food Label?

Nutrition Facts

Serving Size 1 cup (20g)
 Children Under 4 - ½ cup (1½g)
 Servings Per Container about 18
 Children Under 4 - about 24

Amount Per Serving		Calories	% Daily Value*	
		100	140	80
Calories from Fat		15	20	10
Total Fat 2½g				
	3%	3%	1.5g	
Saturated Fat 0g				
	0%	3%	0g	
Trans Fat 0g				
Polyunsaturated Fat 0.5g				
Monounsaturated Fat 0.5g				
Cholesterol 0mg				
	0%	1%	0mg	
Sodium 160mg				
	7%	9%	120mg	
Potassium 170mg				
	9%	14%	130mg	
Total Carbohydrate 20g				
	7%	9%	15g	
Dietary Fiber 5g				
	14%	14%	5g	
Soluble Fiber 1g				
			1g	
Sugars 1g				
			1g	
Other Carbohydrate 17g				
			13g	
Protein 5g				
			5g	
Folic Acid 50%				
	50%	50%	60%	
Vitamin B₁₂ 25%				
	25%	35%	30%	
Phosphorus 10%				
	10%	25%	8%	
Magnesium 10%				
	10%	10%	10%	
Zinc 25%				
	25%	30%	30%	

← Serving size

← Calories

- Fat
- Cholesterol
- Sodium
- Potassium
- Sugars

← Protein

← Phosphorus

What Do I Look for in the Ingredients?

Look for salt or sodium

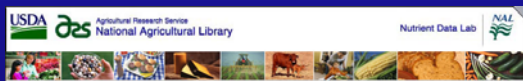
Look for potassium

Ingredients: Whole Grain Oats (includes the oat bran), Modified Corn Starch, Sugar, Salt, Tripotassium Phosphate, Wheat Starch, Vitamin E (mixed tocopherols) Added to Preserve Freshness.
Vitamins and Minerals: Calcium Carbonate, Iron and Zinc (mineral nutrients), Vitamin C (sodium ascorbate), A B Vitamin (niacinamide), Vitamin B₆ (pyridoxine hydrochloride), Vitamin A (palmitate), Vitamin B₂ (riboflavin), Vitamin B₁ (thiamin mononitrate), A B Vitamin (folic acid), Vitamin B₁₂, Vitamin D₃.

← Look for phosphorus/phosphate

Where Else Can I Find Nutrition Information?

- USDA National Nutrient Database – information on over 8,000 foods: <http://ndb.nal.usda.gov/>
 - Can search for up to 3 nutrients (sodium, potassium, phosphorus)
 - Ask for alphabetical list in PDF



What Are Heart-Healthy Choices*?

- Fruits & vegetables (watch potassium*)
- Skinless poultry, fish, especially oily (tuna, salmon, trout, mackerel) & meat alternatives
- Limit red meat; choose – loins & trim fat or lean hamburger
- Processed grains*, like white bread/white rice



How Do I Eat Heart-Healthy?

- Grill, roast, broil, stir-fry, boil; limit frying
- Limit sodium, saturated fats & avoid trans fats
- Be wary of low-fat & lite – usually okay for dairy; some products add sugar &/or salt to improve flavor
- Limit portions, especially of “sometimes foods” (treats)



Chensiyuan at en.Wikipedia.org

Talk with your doctor/dietitian before taking any medicinal herbs or products with medicinal herbs



Is There a Forbidden Fruit?

- **Starfruit** (carambola), is dangerous for CKD patients – **don't eat it!**
- Pomegranate & grapefruit or juice may cause food/drug interactions
- Ask your doctor/druggist about food/drug interactions



SMasters at en.wikipedia.org



Raeky at en.wikipedia.org

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31 of 38

What CAN I Eat?

- Low sodium fresh & frozen meats
- Cream cheese, sour cream, some milk substitutes
- Many veggies, including dialyzed potatoes
- Apples, grapes, berries, cranberries, lemons/limes
- Some canned fruit when same fresh fruit is limited
- Orange soda instead of orange juice
- SunnyD has low potassium, but high phosphorus
- Clear sodas, root beer, coffee, tea, some juices
- **Moderation** is the key

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32 of 38

What Are Some Meal Tips?

Avoid or limit	Better choices
Ham, hot dogs, BBQ	Turkey, chicken, steak, buffalo
Enchiladas, chips & salsa	Chicken, beef or fish tacos
Chinese take-out	Homemade stir-fry, no soy sauce; sushi (no pickled ginger or roe)
Black-eyed peas, beans	Frozen pea & carrot mix, tofu
Pasta with sauce, brown rice	Pasta with garlic & olive oil, plain rice
Undialyzed potatoes/yams	Dialyzed potatoes/yams
Heavily salted or dressed greens	Raw/cooked greens, minimal dressing

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33 of 38

Fresh & homemade is better for you than pre-packaged, boxed or fast foods & it tastes better, too.



If you're not much of a cook now, keep in mind that practice makes perfect!

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34 of 38

What Should I Report to My Dietitian & Kidney Doctor?

- Nausea
- Vomiting
- Diarrhea
- Appetite change
- Food tastes funny
- Weight gain/loss
- Ammonia breath
- Itching
- Increased fatigue
- Change in urine output
- Change in activity level &/or sweating

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35 of 38

Diet & Treatment Type Compared for Typical Patient

Nutrient	CKD	Transplant	3x/Week Hemodialysis*	Peritoneal Dialysis
Protein	Low	Average	High	High
Na	Low	Low	Very Low	Low
K	Depends	Average	Very Low	Low
Phos	Depends	Average	Very Low	Low
Fluid	Depends	More	Much Less	Less
Other	Water pills may affect K	May gain weight	Fewer diet/fluid limits with more hemodialysis	May gain weight

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36 of 38

Ultimately, your diet is your responsibility – not your family's or your dietitian's



But don't be afraid to ask for help!



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37 of 38

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38 of 38