

# Food and Nutrition: What should you eat if you have kidney disease?

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# Content

- Basics of Kidney
- What Should You Eat for Your Chronic Kidney Disease (CKD)?
- Is Herbal Supplement Beneficial or Harmful for CKD?



Aristolochic acid

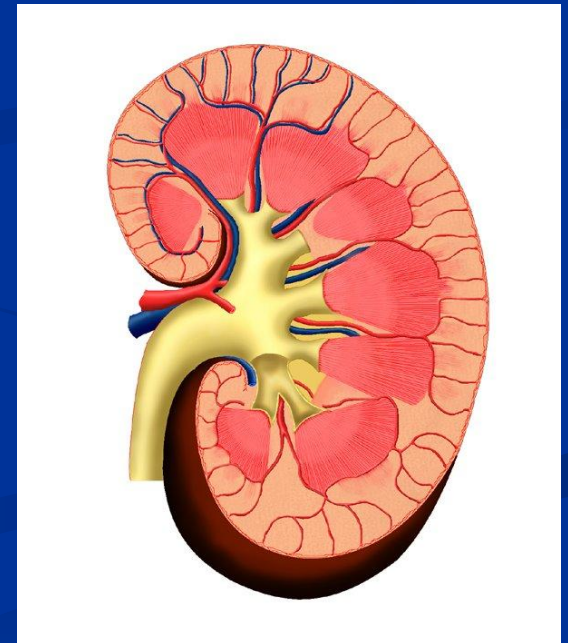


Echinacea



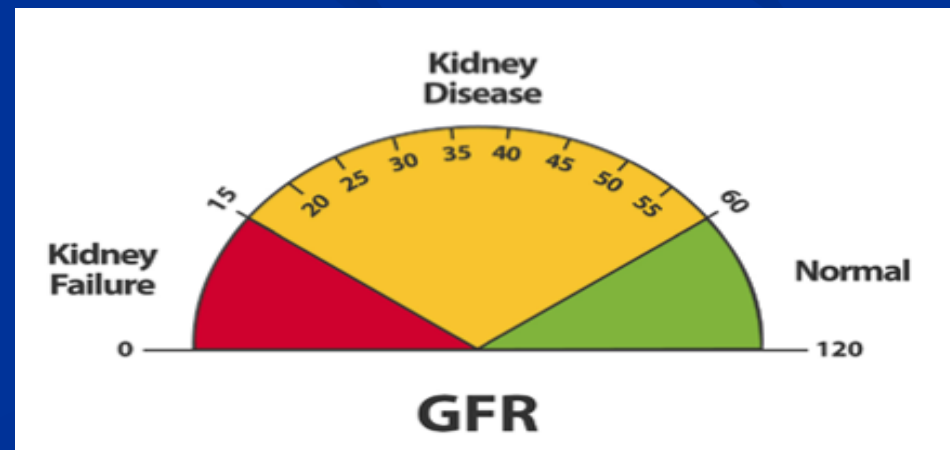
# Basics of Kidney

- **Maintain homeostatic balance**
  - Fluid
  - Electrolytes
- **Excretion of metabolic waste**
  - Urine
- **Produce hormones**
  - Renin
  - Erythropoietin
  - Vitamin D



# Basics of Kidney

- **Measurement of Kidney Function**
  - **Glomerular Filtration Rate (GFR):** GFR is a measure of how well your kidneys filter blood. Use estimated GFR called "eGFR".
- **Stages of Chronic Kidney Disease (CKD)**
  - 5 stages (1-5)
  - Stage 3- 5



# CKD Stages

Stage	Description	eGFR
1	Kidney damage but normal eGFR	90 or more
2	Kidney damage with mild decrease of eGFR	60 - 89
3	Kidney damage with moderate decrease of eGFR	30 - 59
4	Kidney damage with severe decrease of eGFR	15 - 29
5	Kidney failure: need renal replacement therapy	Less than 15

# CKD Risk Factors

- Diabetes
- Hypertension
- Family history of kidney failure
  - Polycystic kidney disease (PKD)
- Cardiovascular disease
- Prolonged consumption of over the counter medication (i.e. ibuprofen) or herbal supplements (Aristolochic acid, Echinacea, Creatine, Chromium, Cat's claw)

# What Should You Eat for Your CKD?

## ■ Purpose

- To maintain good nutritional status
- Slow progression of CKD
- To treat complications

## ■ Key Diet Components

- Controlling blood pressure: Low sodium intake
- Reducing protein intake if EXCESS
- Managing diabetes

**There is no DIET call  
“RENAL DIET”**



**What Should I Eat  
with My CKD???**

**Everything is Individualized Based  
on your own Medical Problems**

# In General

- Low Sodium
- Low Potassium
  - Is your blood potassium level high?
  - Do you take medication called “ACEI or ARB”?
- Moderate Amount of Protein
  - Do you spill protein in urine?
- Low Phosphorus

# Low Sodium Diet

- What does sodium do in the body?
  - Thirst
  - Fluid gain
  - Increase blood pressure
- How much sodium should I take a day?
  - Please choose
    - 1 Table spoon of salt
    - 1 teaspoon of salt
    - 1500 - 2000mg of sodium

# Low Sodium Diet

- Nutrition Label
- What should you read?
  - Portion size
  - Servings per container
  - Nutrients
    - Calories
    - Protein
    - Fat (total, saturated fat, trans fat)
    - Cholesterol
    - Carbohydrates (sugar, fiber)
    - Vitamins and Minerals
    - **Sodium**
      - Your restriction
      - Healthy population

<b>Nutrition Facts</b>	
Serving Size 1 cup (228g)	
Servings Per Container 2	
<b>Amount Per Serving</b>	
<b>Calories</b> 250	Calories from Fat 110
<b>% Daily Value*</b>	
<b>Total Fat</b> 12g	<b>18%</b>
Saturated Fat 3g	<b>15%</b>
<i>Trans Fat</i> 3g	
<b>Cholesterol</b> 30mg	<b>10%</b>
<b>Sodium</b> 470mg	<b>20%</b>
<b>Total Carbohydrate</b> 31g	<b>10%</b>
Dietary Fiber 0g	<b>0%</b>
Sugars 5g	
<b>Protein</b> 5g	
Vitamin A	<b>4%</b>
Vitamin C	<b>2%</b>
Calcium	<b>20%</b>
Iron	<b>4%</b>
* Percent Daily Values are based on a 2,000 calorie diet. Your Daily Values may be higher or lower depending on your calorie needs.	
	Calories: 2,000    2,500
Total Fat	Less than 65g    80g
Sat Fat	Less than 20g    25g
Cholesterol	Less than 300mg    300mg
Sodium	Less than 2,400mg    2,400mg
Total Carbohydrate	300g    375g
Dietary Fiber	25g    30g

Portion Size

Number or servings per Container

Sodium

Sodium Recommendation For Healthy People

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Sat Fat	Less than	20g	25g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

# Low Potassium

- What is normal potassium level?
- Do you take medication called “ACEI or ARB”?
  - What are these?
    - ACEI: Angiotensin Converting Enzyme Inhibitor
      - Lisinopril, Enalapril
    - ARB: Angiotensin Receptor Blocker
      - Avapro, Losartan
  - Why do you need this meds?
- What is your potassium level?

# What is Normal Potassium Level?

## ■ Safe Zone

- 3.5 – 5.0 (mmol/L)

- Harvard Vanguard Medical Associate: 3.3 – 5.3

## ■ CAUTION

- 5.1 (5.4) – 6.0

## ■ DANGER

- Greater than 6.0



# To Keep Potassium Level in Safe Zone

- Limit high potassium foods
- Eat a variety of foods in moderation
- Modify cooking methods to lower potassium content of the foods
- Do not drink or use the liquid from canned fruits or vegetables
- Remember portion size!!



# High Potassium Foods

Food	Amount	Potassium
Fruits, Dried Fruits and Fruit juices		
Avocado	1/4	149
Banana	1/2 or 7"	422
Cantaloupe	3/4 cup (1/8)	320
Dates	1/4 c	292
Honeydew	3/4 cup (1/8)	303
Kiwi	1	237
Mango	1	323
Nectarine	1	277
Orange	1	237
Prunes	1 cup	796
Raisins	1/4 cup	272
Orange Juice	8 floz	496
Prune Juice	8 floz	706

# High Potassium Foods

Food	Amount	Potassium
<b>Vegetables</b>		
Artichoke	1	343
Broccoli	1/2 cup	229
Brussels Sprouts	1/2 cup	248
Carrots – raw	1 cup	390
Beans (kidney, pinto, red, white and Lima)	1/2 cup	380 – 500
Mushrooms – canned	1/2 cup	331
Parsnips	1/2 cup	287
White Potatoes	1 (small) baked	925
Sweet (Yam)	3/4 cup	918
Pumpkin	1/2 cup	252
Tomato	1 (small fresh)	291
Tomato sauce	1/2 cup	807
Vegetable juices (V8)	8 floz	520
Winter squash	1/2 cup	448

# High Potassium Foods

Food	Amount	Potassium
<b>Other Foods</b>		
Chocolate	1 bar (1.5 oz)	150
Granola	1/2 cup	330
Milk (all type)	8 fl oz	348
Yogurt	8 oz	380
Organ meat	3 oz	340
Molasses	1 Tbsp	292
Nuts and seeds	1 oz	206
Peanut butter	2 Tbsp	207
Lite salt	1/4 tsp	354

# Low Potassium Foods

Fruits	Vegetables	Other foods
Apples – 1	Alfalfa Sprouts	Rice
Applesauce	Asparagus – 6 spears	Noodles
Apricots (fresh) – 1 medium	Beans: green or wax	Pasta
(canned) – ½ cup	Bean Sprouts	Bread and bread products –
Blackberries	Beets, cooked	not whole grain
Blueberries	Cabbage	Cereals – not bran or whole
Cherries	Carrots, cooked	grain
Cranberries	Cauliflower	Cake – not carrot or
Fruit Cocktail	Celery – 1 stalk	chocolate
Grapefruit – ½	Corn	Coffee – limit 1 cup
Grapes	Cucumber	Cookies – without nut or
Mandarin Oranges	Eggplant	chocolate
Peaches (fresh) – 1 small	Kale	Pies – without chocolate or
(canned) – ½ cup	Lettuce	high potassium fruits
Pears (fresh) – 1 small	Mixed Vegetables	Tea – limit 2 cups
(canned) – ½ cup	Mushroom – fresh	
Pineapple	Okra	
Raspberries	Onions	
Strawberries	Parsley	
Tangerines – 1	Peas, green	
Watermelon – 1 cup	Radish	
Apple, cranberry, grape,	Rhubarb	
grapefruit and pineapple juice	Squash (summer, zucchini)	



# Low Potassium Diet

- Know your potassium level
- Know your current medications
  - ACEI
  - Diuretics (water pill)
- Watch very high potassium foods and portions
- Ask your dietitian

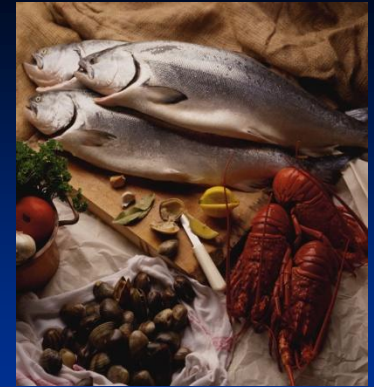


# Dietary Protein

- **What is protein?**
  - **Essential nutrient in the body**
    - Growth
    - Build muscles
    - Repair tissues
- **Why do you concern protein with CKD?**
  - Body uses protein and produce waste product called “urea” which is removed by kidney
  - In CKD, urea accumulate in the body



# Dietary Protein



- What are protein sources?
  - High biologic value protein(HBV): animal products
  - Low biologic value protein (LBV): plant products
- Do you spill protein in the urine?
  - Amount of protein in the urine determine whether you should restrict protein





# Dietary Protein

- How much should I eat protein daily?
  - 0.8 – 1.3gm/kg/body weight/day
  - 2/3 (67%) to 70% should come from HBV protein foods
- **DO NOT FOLLOW LOW CARBOHYDRATE HIGH PROTEIN WEIGHT LOSS DIET**

# Dietary Protein

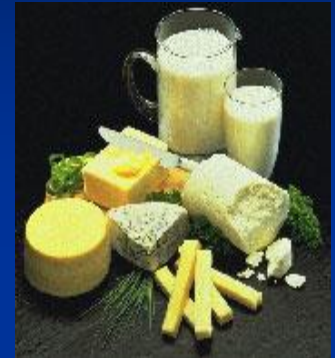
- Be sure to eat all of the servings of protein in your diet plan
- Eat enough calories to avoid your body using protein as an energy source
- Portion size is important
- Meat, fish and poultry must be measured after cooking without bone, skin or fat
- Consult with your renal nutritionist before you start low protein diet

# Phosphorus

- What is phosphorus?
  - Mineral that helps bone healthy
  - Keep blood vessels and muscles working
- Why should you watch phosphorus in CKD?
  - Phosphorus can build up in the blood vessels, making bones thins, weak and break

# Phosphorus

- What foods are high in phosphorus?
  - All foods rich in protein especially dairy products, organ meats
  - Beans, bran products, nuts and seeds
  - Dark soda (cola, root beer) and bottled iced tea
- What foods are low in phosphorus?
  - Fresh fruits and vegetables
  - Rice milk (if not enriched)
  - Bread, pasta and rice
  - Corn and rice cereals



# Phosphorus

- Do not consume excess protein in your diet
  - Meat, poultry, fish
  - Dairy foods: 1 cup milk or 1 oz cheese max
- Eat more fresh fruits and vegetables
- Many packaged foods contain additives containing phosphorus: **READ LABEL** and avoid for words with **PHOS**

Ingredients: Potatoes, vegetable oil (partially hydrated soybean oil), salt, dextrose, disodium dihydrngen pyro**phos**pate .....

# **HERBAL SUPPLEMENTS**

**Are They Beneficial or Harmful?**

# Herbal Supplements

- Herbal supplement manufacturers **DO NOT** have to get approval from the Food and Drug Administration (FDA) before putting the products on the market
- Over 7,000 herbal supplements in late 1990's
- Are they safe?
  - FDA is monitoring the safety once they are on the market
  - It may be harmful to use with prescription meds

# Herbal Supplements

- How to know what's in an herbal supplement?
  - Name of herbal supplements
  - Name and address of manufacturer
  - Complete list of ingredients and serving size
- How to know if herbal supplement's claims are true?
  - Ask your doctor or pharmacist
  - Look for scientific research findings
  - Contact manufacturer



# Herbal Supplements

- Who shouldn't use herbal supplements?
  - You are taking prescription or over the counter (OTC) medications
  - You are pregnant or lactating
  - You are having surgery
  - Children (< 18 years old) or elderly
  - You have chronic medical problems such as CKD

# Herbal Supplements

- **Safety tips for using herbal supplements**
  - **Follow supplement instructions**
    - Don't take extra dosage
  - **Keep track of what you take**
    - How long and how much
  - **Be extra cautious about supplements manufacturer outside the USA**
    - China, India and Mexico
  - **Avoid products with tainted past**
    - Most weight loss pills
  - **Check alerts and advisories**
    - FDA regulatory review

# Herbal Supplements



# Herbal Supplements Harmful for the Kidney

■ *Aristolochia  
serpentaria*  
(Snakewood)

■ *Chromium  
picolinate*

■ *Echinacea*

■ *Bladderwrack*

■ *Germanium*

■ *Wormwood oil*

■ *Salix daphnoides*  
(willow bark)

■ *Uncaria tomentosa*  
(cat's claw)

■ *Pausinystalia yohimbe*

■ *Chaparral*

■ *Cranberry*

■ *Licorice*



# Herbal Supplements Harmful for the Kidney

Common Name	Claims	Renal problems and other side effects
Aristolochic Acid (Snakewood)	Anticonvulsant, aphrodisiac, menstrual stimulant	Acute kidney failure Vomiting, gastroenteritis Muscle spasms
Bladderwrack	Weight loss, thyroid disorder, antibiotic, antioxidant	Polyuria, proteinuria Hyperthyroidism, goiter Gast disturbance, diarrhea
Cat's claw	Dyspepsia, ulcer, anti- inflammatory	Acute nephritis Diarrhea, hypotension, bleeding gums
Chaparral	Antioxidant, anti- inflammatory	Renal cyst Rash, liver failure
Chromium picolinate	Weight loss, hypoglycemic	Acute and chronic nephritis Anemia, cognitive dysfunction Hemolysis, hepatic dysfunction

# Herbal Supplements Harmful for the Kidney

Common Name	Claim	Renal problems and other side effects
Cranberry	Urinary tract infection	Kidney stone Nausea, diarrhea, dehydration
Echinacea	Upper respiratory infection	Acute renal failure Fever, drowsiness, headache nausea, vomit, abdominal pain
Germanium	Immunostimulant, anti inflammatory	Minor renal abnormalities Anemia, muscle wasting
Licorice	Peptic ulcer, lupus, infection	Renal injury, acute renal failure Amenorrhea, lethargy, pulmonary edema, weakness
Wormwood oil	Appetite stimulant, heartburn	Acute renal failure Nausea, vomit, muscle ache

# Summary

- There is no Renal Diet
- CKD diet should be individualized on your own medical condition
- Herbal supplement should be used with caution

Thank you

