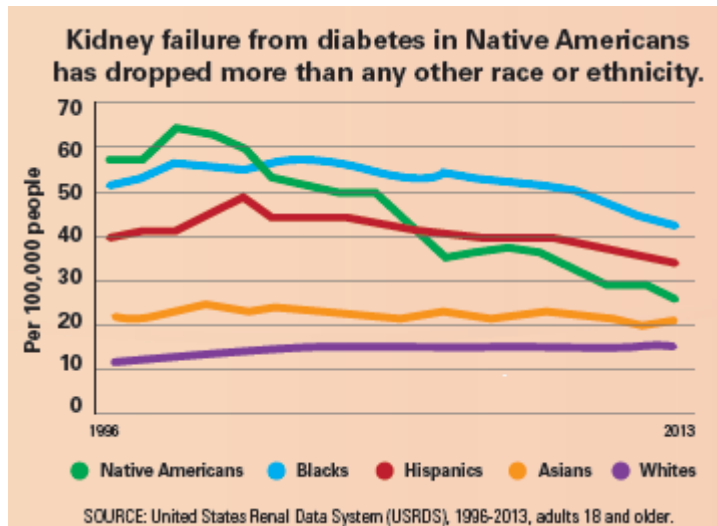


UPDATE ON NUTRITION FOR PEOPLE WITH CHRONIC KIDNEY DISEASE

2/7/2017

**Theresa Kuracina,
MS, RD, CDE**

A MODEL FOR DIABETES CARE



<https://www.cdc.gov/vitalsigns/pdf/2017-01-vitalsigns.pdf>



OBJECTIVES

1. Identify Chronic Kidney Disease (CKD) using urine and blood tests
2. Counsel patients with a CKD diagnosis on kidney functions and complications of CKD.
3. Instruct patients on dietary interventions to slow progression of CKD.
4. Locate and use My Native Plate to teach patients about sources of sodium, protein, phosphorus and potassium in food groups.
5. Identify one change you can make in your clinical or public health practice.

HOW WELL ARE YOUR KIDNEYS WORKING?

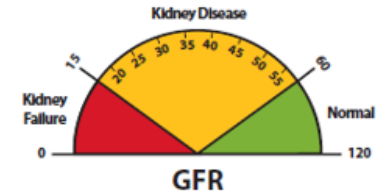


How well are your kidneys working?

Explaining Your Kidney Test Results

Your GFR result on _____ was _____.
Date

- ☐ A GFR of 60 or higher is in the normal range.
- ☐ A GFR below 60 may mean kidney disease.
- ☐ A GFR of 15 or lower may mean kidney failure.



What is GFR?

GFR stands for glomerular filtration rate. GFR is a measure of how well your kidneys filter blood.

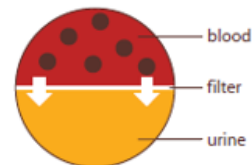
Your urine albumin result on _____ was _____.
Date

- ☐ A urine albumin result below 30 is normal.
- ☐ A urine albumin result above 30 may mean kidney disease.

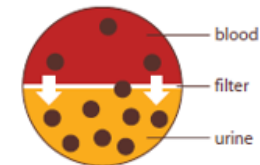
What is urine albumin?

Albumin is a protein found in the blood. A healthy kidney does not let albumin pass into the urine. A damaged kidney lets some albumin pass into the urine. The less albumin in your urine, the better.

Inside a healthy kidney



Inside a damaged kidney



Your blood pressure result on _____ was _____.
Date

Controlling your blood pressure may help to protect your kidneys.

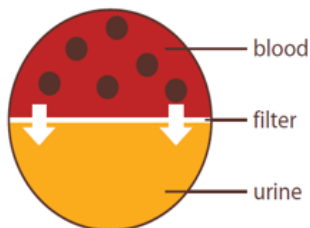
<https://www.niddk.nih.gov/health-information/health-communication-programs/nkdep/a-z/explaining-kidney-test-results/Documents/explaining-kidney-test-results-508.pdf>

ASSESS KIDNEY DAMAGE

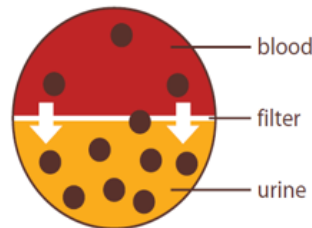
- Check Urine Albumin to Creatinine Ratio (UACR) at diagnosis & annually
< 30 mg/g is normal
30 and higher may mean CKD (confirm)

- Medications may reduce albuminuria:
 - Angiotensin converting enzyme inhibitor (ACEi)
 - Angiotensin receptor blocker (ARB)
 - Both decrease urinary potassium excretion

Inside a *healthy* kidney



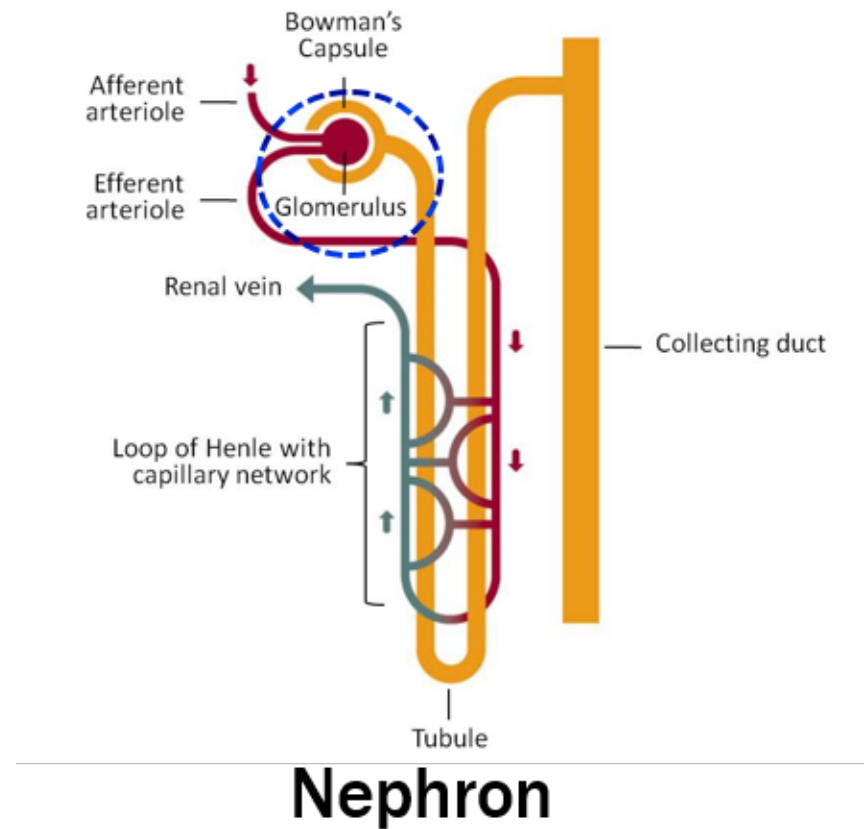
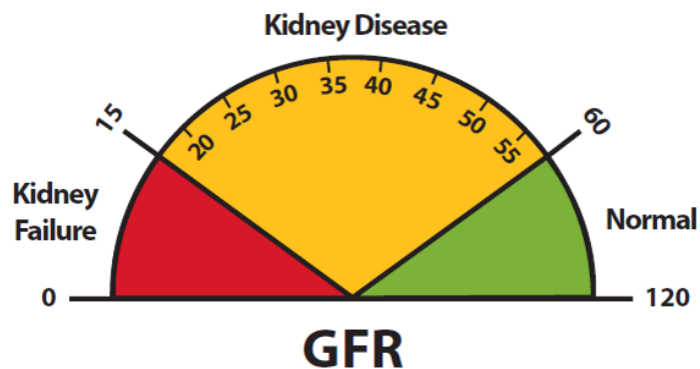
Inside a *damaged* kidney



mg/g = milligram per gram creatinine

ASSESS KIDNEY FUNCTION

- Check serum creatinine to estimate Glomerular Filtration Rate (eGFR) at diagnosis and annually.



KIDNEY FUNCTIONS AND COMPLICATIONS

Kidney Functions	Complications
Produce urine	Most people continue to make urine until eGFR is quite low
Maintain composition and volume of blood	Abnormal labs including high blood urea nitrogen, potassium; low serum bicarbonate
Make renin for blood pressure control	BP may be harder to control – multiple meds
Make erythropoietin for red blood cell (RBC) synthesis	Anemia may develop (low hemoglobin)
Activate vitamin D	Abnormal mineral metabolism may develop: low vitamin D and calcium levels, high phosphorus and parathyroid hormone levels
Metabolize and excrete certain medications	Increased risk for low sugars from certain medications (e.g., sulfonylureas, insulin)

EXAMPLE KIDNEY TEST RESULTS

Your
KidneyTestResults


Name: Charlie
Date: Feb 7, 2017

Chronic Kidney Disease (CKD) Tests	Results	Why It Is Important
Serum Creatinine and Estimated Glomerular Filtration Rate (eGFR)	CKD is an eGFR less than 60 Your Serum Creatinine Result: Nov 2016 37 Your eGFR Result: 38 Stable	eGFR estimates how well your kidneys are filtering blood. As kidney disease gets worse, the creatinine goes up and the eGFR goes down.
Urine Albumin-to-Creatinine Ratio (UACR)	CKD is more than 30 Nov 2016 338 Your Result: 254	Urine albumin checks for kidney damage. The lower the result, the better. <i>Lisinopril</i>

Other Important Tests	Results	Why It Is Important
Blood Pressure	Goal: Your Result:	High blood pressure makes the heart work harder and can damage blood vessels in the kidneys.
Serum Albumin	Normal: 3.4 to 5.0* Your Result:	Albumin is a protein that helps measure how well you are eating.
Bicarbonate	Normal: More than 22 Your Result:	Bicarbonate measures the acid level in your blood.
Blood Urea Nitrogen (BUN)	Normal: Less than 20 Your Result:	BUN checks how much urea, a waste product, is in your blood.
Potassium	Nov 2016 5.2 <i>Salt substitute</i> Normal: 3.5 to 5.0* Your Result: 4.9	Potassium affects how your nerves and muscles are working. High or low levels can be dangerous.
Calcium	Normal: 8.5 to 10.2* Your Result:	Calcium keeps your bones strong and your heart rhythm steady. CKD can lower the amount of calcium in your bones.
Phosphorus	Normal: 2.7 to 4.6* Your Result:	Phosphorus is important for strong bones and healthy blood vessels. High levels may cause soft bones, hard blood vessels and itchy skin.
Parathyroid Hormone (PTH)	Normal: Less than 65 Your Result:	PTH controls the calcium and phosphorus levels in your blood. It is needed to keep bones and blood vessels healthy.
Vitamin D	Normal: 20 or more Your Result:	Vitamin D is important for bones and heart health.

*Normal ranges may vary.

Your Kidney Test Results

Other Important Tests, continued	Results	Why It Is Important
A1C (for patients with diabetes)	Goal: Your Result:	A1C estimates average blood sugar levels over 2 to 3 months.
Total Cholesterol	Normal: Less than 200 Your Result:	Cholesterol measures the amount of fat in your blood. Too much cholesterol can clog blood vessels or arteries in the heart and kidneys.
HDL Cholesterol	Normal: More than 40 Your Result:	HDL is the good cholesterol and clears bad fats out of your arteries.
LDL Cholesterol	Normal: Less than 100 Your Result:	LDL is the bad cholesterol and can clog your arteries.
Triglycerides	Normal: Less than 150 Your Result:	Triglyceride is a type of fat in the blood.
Hemoglobin (Hgb)	Normal: 12 to 17* Your Result:	Low hemoglobin is a sign of anemia. You may feel tired if you have anemia.

*Normal ranges may vary.

Notes: Great job!

For more information, visit www.nkdep.nih.gov or call 1-866-4 KIDNEY (1-866-454-3639).

The National Kidney Disease Education Program (NKDEP) encourages people to get tested for kidney disease and educates those with kidney disease and their providers about treatments that can help delay or prevent kidney failure. NKDEP is a program of the National Institutes of Health.



National Institute of Diabetes and Digestive and Kidney Diseases


NKDEP

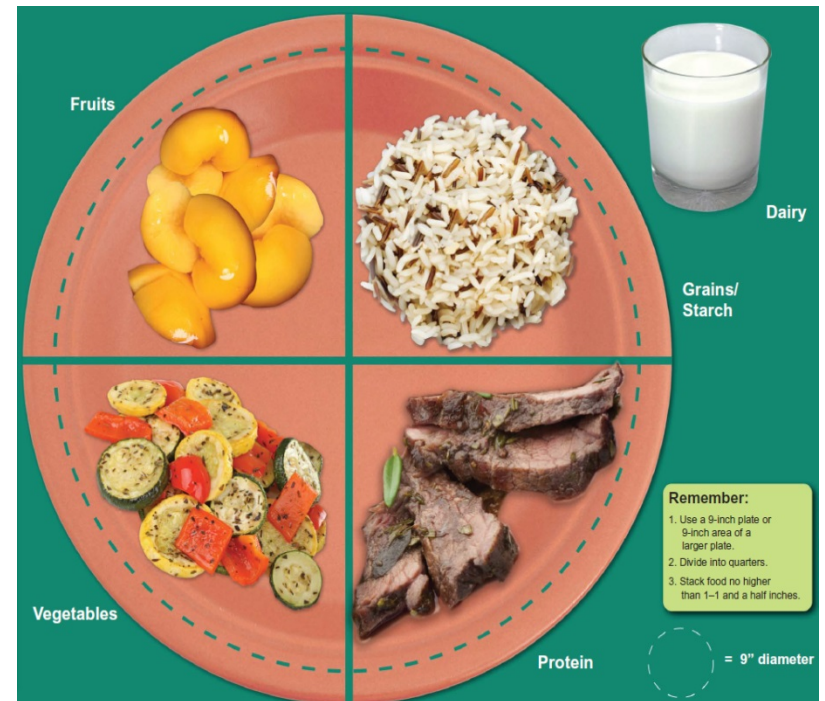
NIH Publication No. 13-7407 • Revised February 2013

NIH...Turning Discovery Into Health®

<https://www.niddk.nih.gov/health-information/health-communication-programs/nkdep/a-z/explaining-kidney-test-results/Documents/kidney-test-results-508.pdf>

KEY DIETARY COMPONENTS TO SLOW PROGRESSION

- Control blood pressure by eating less sodium
- Reduce protein intake, if excessive
 - Proteins have nitrogen, phosphorus, potassium
- Manage diabetes



EATING RIGHT FOR CKD

FIRST STEPS

- Choose and prepare foods with less salt and sodium
- Eat the right amount and type of protein
- Choose foods that are healthy for your heart

NEXT STEPS

- Choose foods with less phosphorus
- Choose foods with the right amount of potassium

KIDNEY HEALTH HANDOUTS

Eating Right for

Kidney Health

Tips for People with Chronic Kidney Disease (CKD)

What you eat and drink can help slow down chronic kidney disease. Some foods are better for your kidneys than others. Cooking and preparing your food from scratch can help you eat healthier.

These tips will help you eat right as you manage your CKD. The First Steps to Eating Right (pages 1 and 2) are important for all people with CKD. The Next Steps to Eating Right (page 3) may become important as your kidneys slow down.

Work with your dietitian to choose the right foods for you.

THE FIRST STEPS TO EATING RIGHT

STEP 1

Choose and prepare foods with less salt and sodium.

Why? To help control your blood pressure. Your diet should contain less than 2,300 milligrams of sodium each day.

STEP 2

Eat the right amount and the right types of protein.

Why? To help protect your kidneys.

STEP 3

Choose foods that are healthy for your heart.

Why? To help keep fat from building up in your blood vessels, heart, and kidneys.

Eating Right for Kidney Health

THE FIRST STEPS TO EATING RIGHT

STEP 1 Choose and prepare foods with less salt and sodium.

- Buy fresh food more often. Sodium (a part of salt) is added to many packaged foods.
- Use spices, herbs, and sodium-free seasonings in place of salt.
- Check the Nutrition Facts label on food packages for sodium. A Daily Value of 20% or more means the food is high in sodium.

in versions of frozen dinners and other convenience foods. Vegetables, beans, meats, and fish with water before eating.

Labels that Say

Salt free • Very low sodium • Low sodium • Reduced or less sodium

No salt added • Unsalted • Lightly salted

right amount and right types of protein.

as of protein foods.

in foods from plants and animals. Talk to your dietitian about how to combine them for you.

Foods

Plant-protein Foods

Meat • Eggs • Dairy

Beans • Nuts • Grains

foods that are healthy for your heart.

roast, or stir-fry foods, instead of deep frying.

ick cooking spray or a small amount of olive oil instead of butter.

eat and remove skin from poultry before eating.

oods

eat, like loin or round • Poultry without the skin • Fish • Beans

Fruits • Low-fat milk, yogurt, cheese

Eating Right for Kidney Health

THE NEXT STEPS TO EATING RIGHT

As your kidneys slow down, you may need to eat foods that are lower in phosphorus and potassium. Your health care provider will use lab tests to watch your levels.

Choose foods with less phosphorus.

help protect your bones and blood vessels.

packaged foods have added phosphorus. Look for phosphorus—or for words like “PHOS”—on ingredient labels.

meats and some fresh meat and poultry can have added phosphorus. Ask the dietitian to help you pick fresh meats without added phosphorus.

Lower in Phosphorus

Foods Higher in Phosphorus

- Vegetables and fruits
- Breads, pasta, rice
- Milk (not enriched)
- Corn and rice cereals
- Unflavored sodas/pop

- Meat, poultry, fish
- Bran cereals and oatmeal
- Dairy foods
- Beans, lentils, nuts
- Colas

Choose foods that have the right amount of potassium.

help your nerves and muscles work the right way.

substitutes can be very high in potassium. Read the ingredient label. Check with your dietitian about using salt substitutes.

canned fruits and vegetables before eating.

Foods Lower in Potassium

Foods Higher in Potassium

- Apples, peaches
- Carrots, green beans
- White bread and pasta
- White rice
- Rice milk (not enriched)
- Cooked rice and wheat cereals, grits

- Oranges, bananas
- Potatoes, tomatoes
- Brown and wild rice
- Bran cereals
- Dairy foods
- Whole wheat bread and pasta
- Beans and nuts

<https://www.niddk.nih.gov/health-information/health-communication-programs/nkdep/a-z/eating-right/Documents/eating-right-508.pdf>

4/5/2017

11

DIETARY INTAKE RECOMMENDATIONS

Dietary Intakes Compared to Recommendations.
Percent of the U.S. Population Ages 1 Year & Older
Who Are Below, At, or Above Each Dietary Goal or Limit

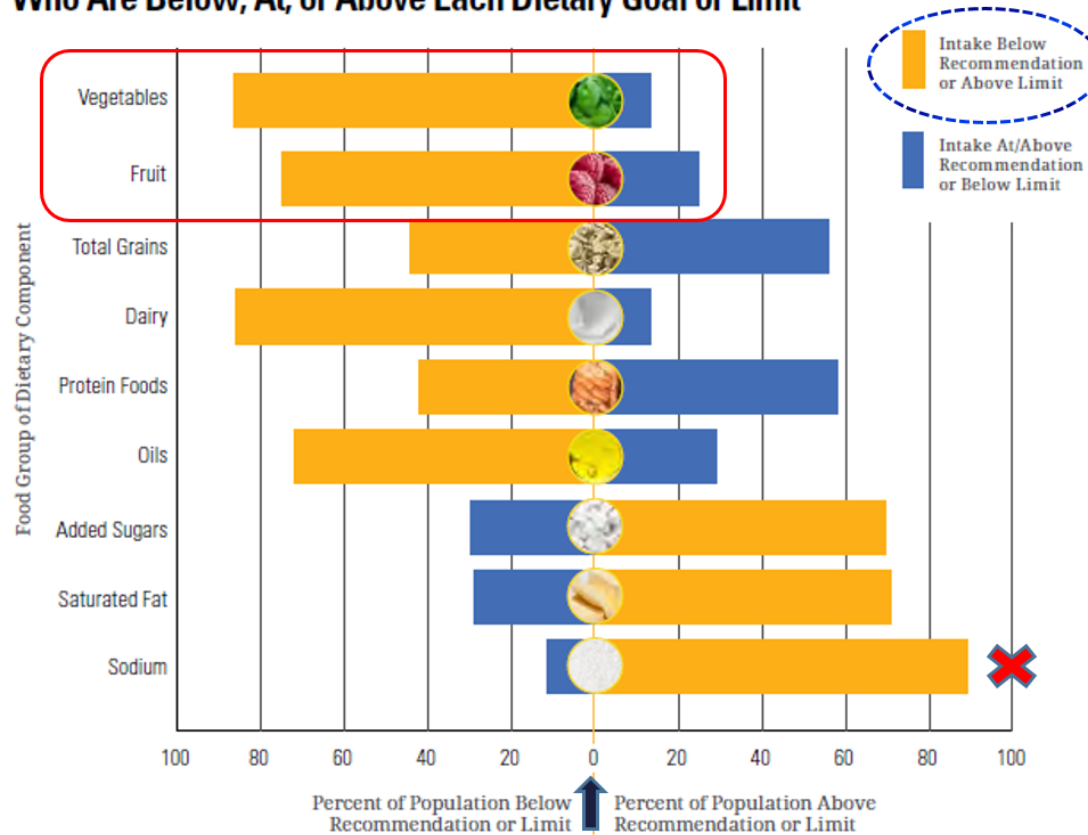


Figure 2-1. U.S. Department of Health and Human Services and U.S. Department of Agriculture 2015-2020 Dietary Guidelines for Americans. 8th Edition. December 2015.
<http://health.gov/dietaryguidelines/2015/guidelines/>

WHAT IS A HEALTHY INTAKE? (HOW MUCH DO WE NEED?)

Adults	Women	Men	% Daily Value on Label
Sodium (UL)	2,300 mg	2,300 mg	2,400 mg
Protein per day (RDA: 0.8 g/kg)	46 g	56 g	50 g
Phosphorus (RDA)	700 mg	700 mg	1,000 mg
Potassium (AI)	4,700 mg	4,700 mg	3,500 mg

UL = Tolerable Upper Intake Level (*highest level of nutrient intake that is likely to pose no risk of adverse health effects*).

RDA = Recommended Dietary Allowance (average daily intake sufficient to meet nutrient requirements for 97-98% of healthy individuals in a group).

AI = Adequate Intake (Not enough scientific evidence available to determine RDA).

NEW LABEL WILL INCLUDE POTASSIUM

Original Label	New Label
Nutrition Facts Serving Size 2/3 cup (55g) Servings Per Container About 8	Nutrition Facts 8 servings per container Serving size 2/3 cup (55g)
Amount Per Serving Calories 230 Calories from Fat 72	Amount per serving Calories 230
	% Daily Value*
Total Fat 8g	12%
Saturated Fat 1g	5%
Trans Fat 0g	
Cholesterol 0mg	0%
Sodium 160mg	7%
Total Carbohydrate 37g	12%
Dietary Fiber 4g	16%
Sugars 1g	
Protein 3g	
Vitamin A	10%
Vitamin C	8%
Calcium	20%
Iron	45%
* Percent Daily Values are based on a 2,000 calorie diet. Your daily value 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
	Includes 10g Added Sugars 20%
	Protein 3g
	Vitamin D 2mcg 10% Calcium 260mg 20% Iron 8mg 45% Potassium 235mg 6%
	* The % Daily Value (DV) tells you how much a nutrient in a serving of food contributes to a daily diet. 2,000 calories a day is used for general nutrition advice.

Percent Daily Value
 5% or less = low
 20% or more = high

Potassium listed

FOOD GROUPS: THE BASICS

Proximate analyses from United States Department of
Agriculture Agricultural Research Service USDA Food
Composition Databases

<https://ndb.nal.usda.gov/ndb/search/list>

Some Values are Rounded

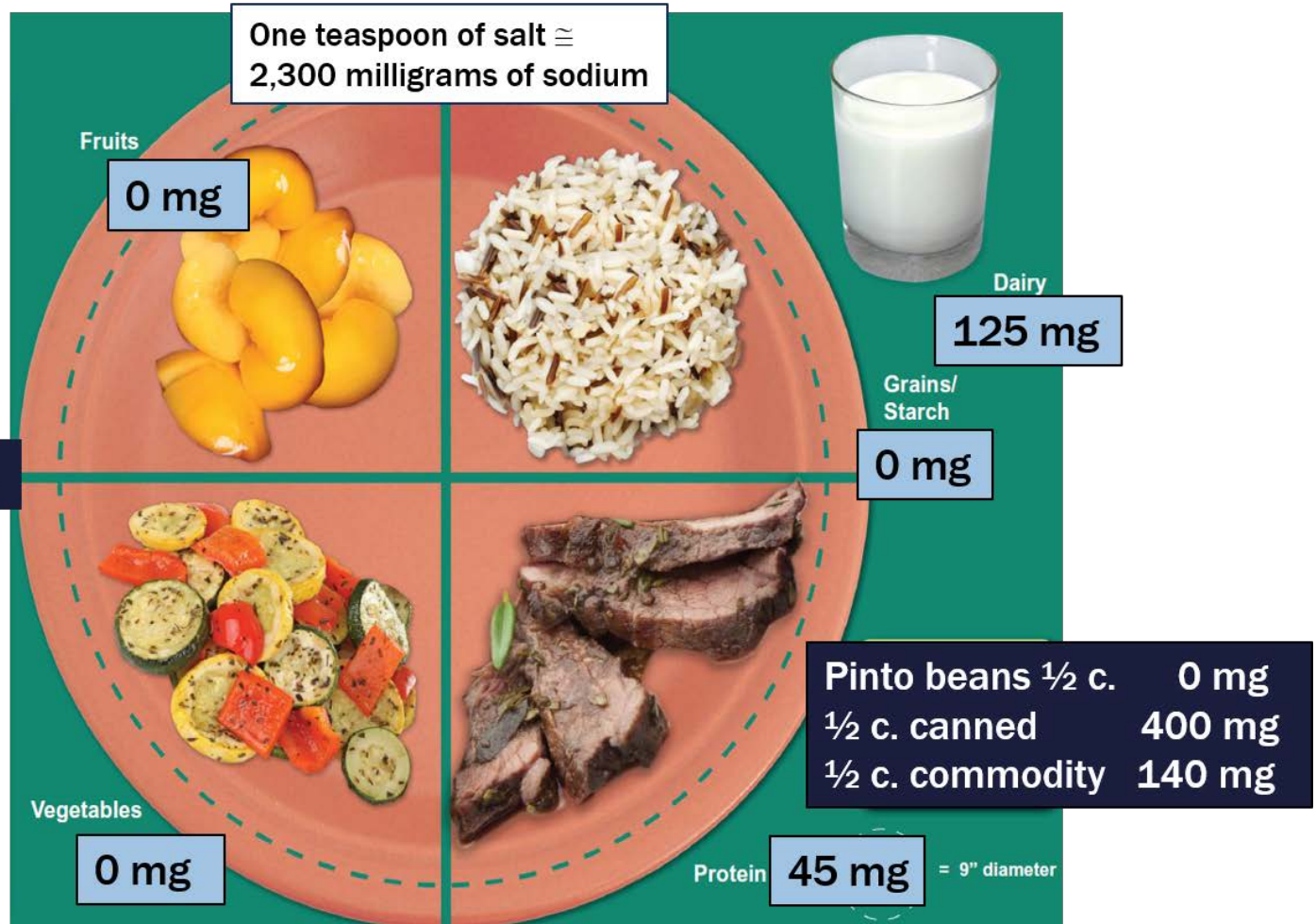
CHOOSE AND FIX FOODS WITH LESS SALT AND SODIUM

mg = milligrams

2,300 mg/day

Total: 170 mg

One teaspoon of salt $\cong$
2,300 milligrams of sodium



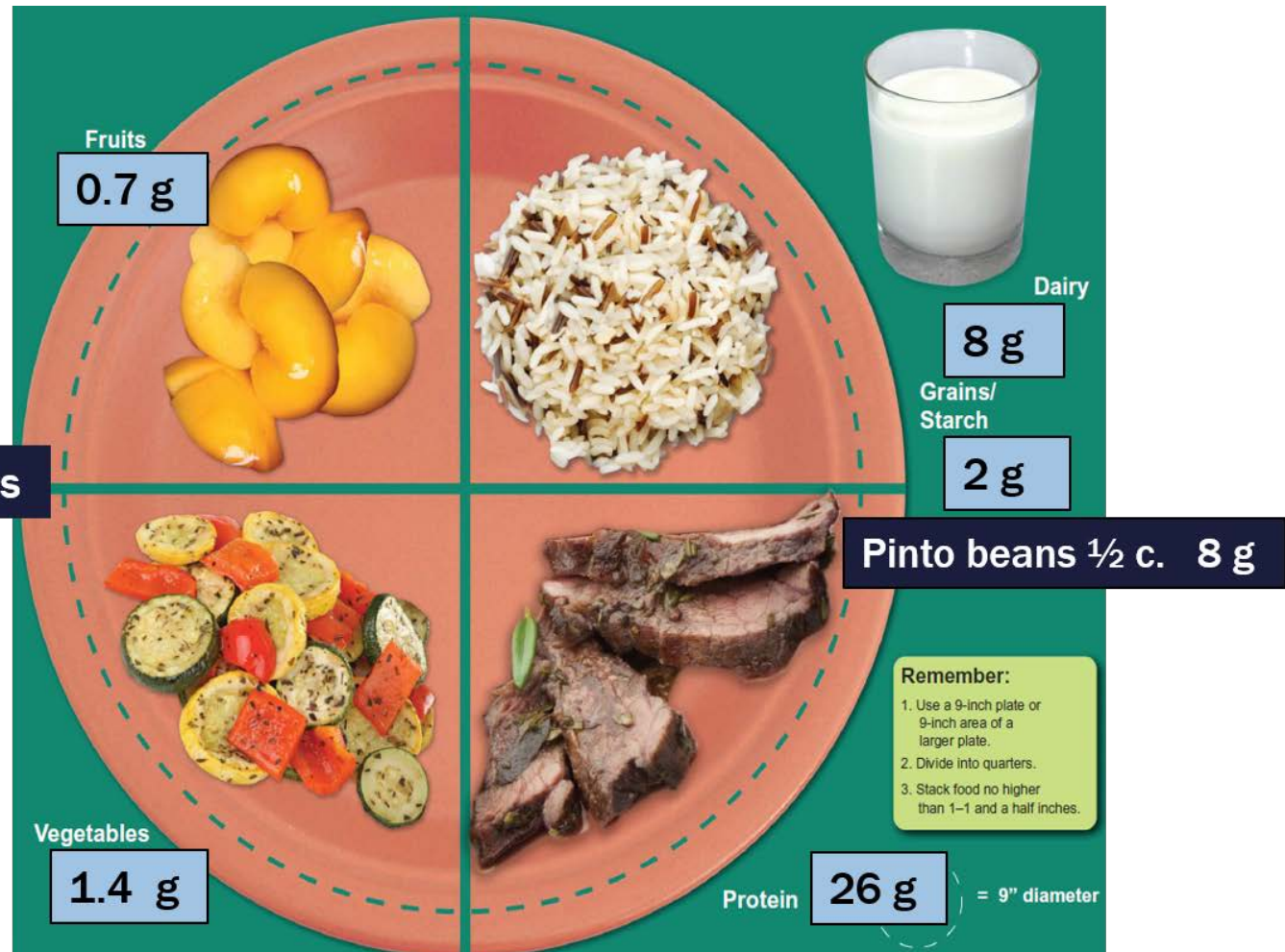
EAT THE RIGHT AMOUNT AND TYPE OF PROTEIN

g = grams

Women 46 g/day

Men 56 g/day

Total: 38 grams

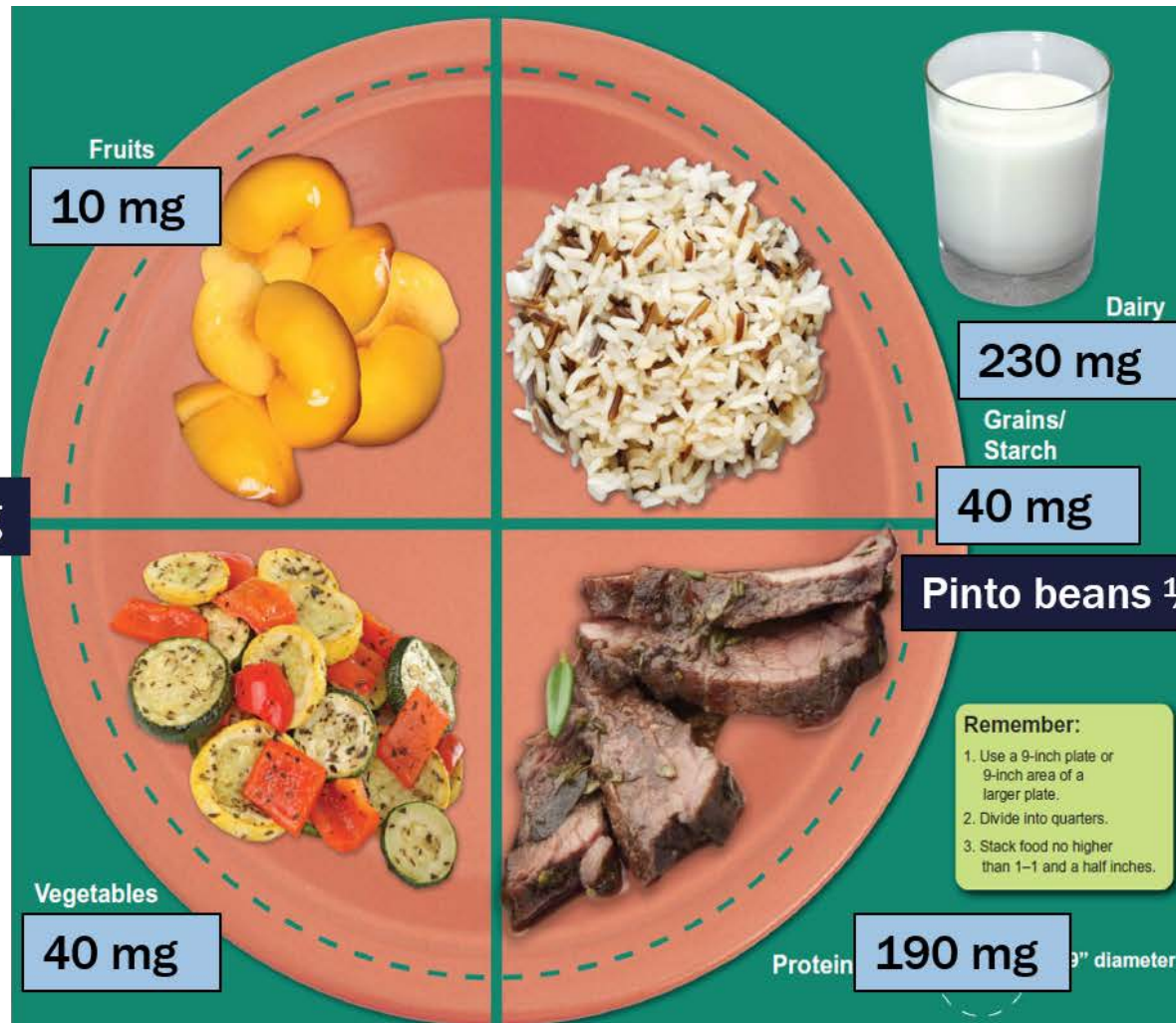


CHOOSE FOODS WITH LESS PHOSPHORUS

mg = milligrams

700 mg/day

Total: 510 mg

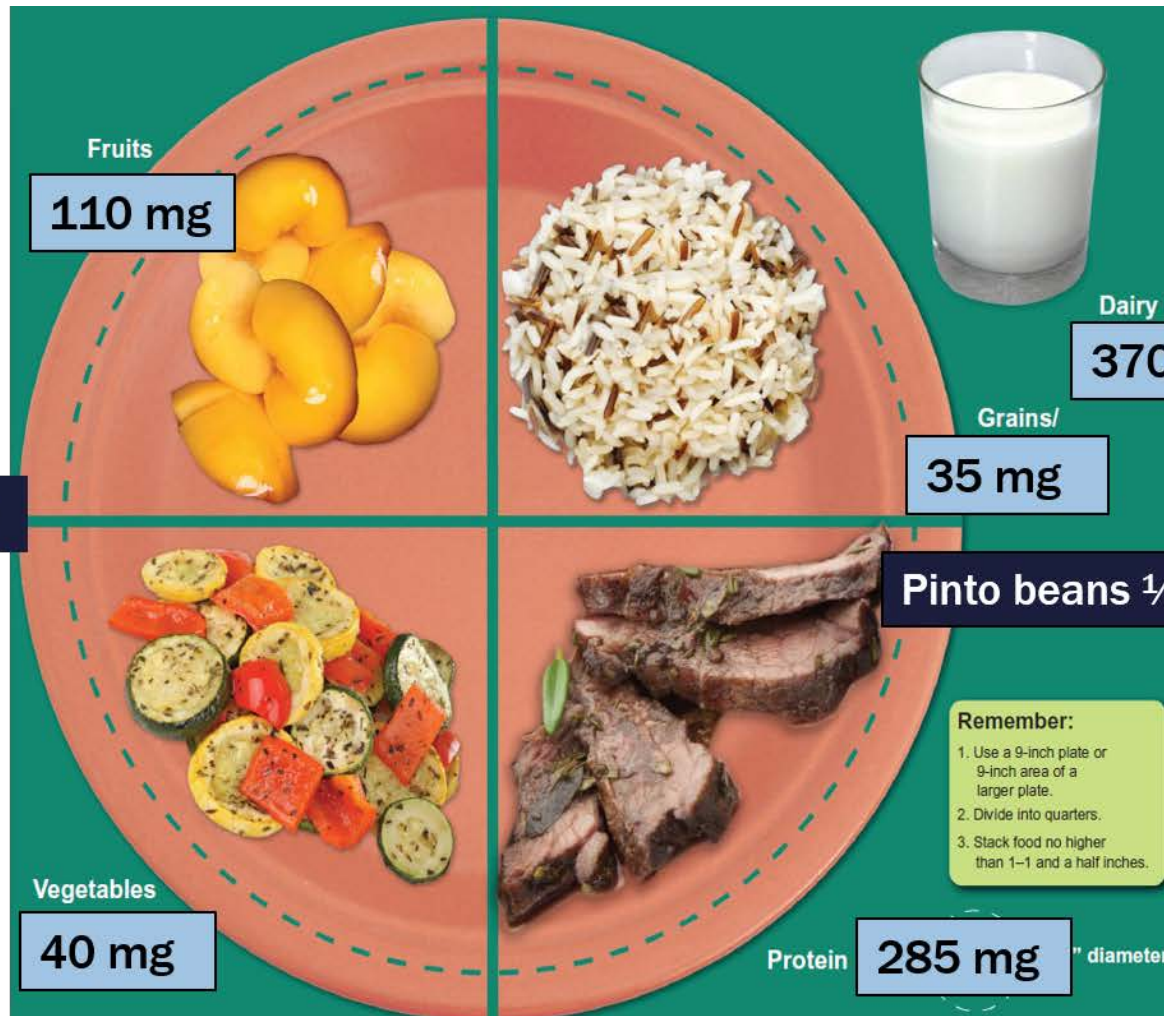


CHOOSE FOODS WITH THE RIGHT AMOUNT OF POTASSIUM

mg = milligrams

4,700 mg/day

Total: 840 mg



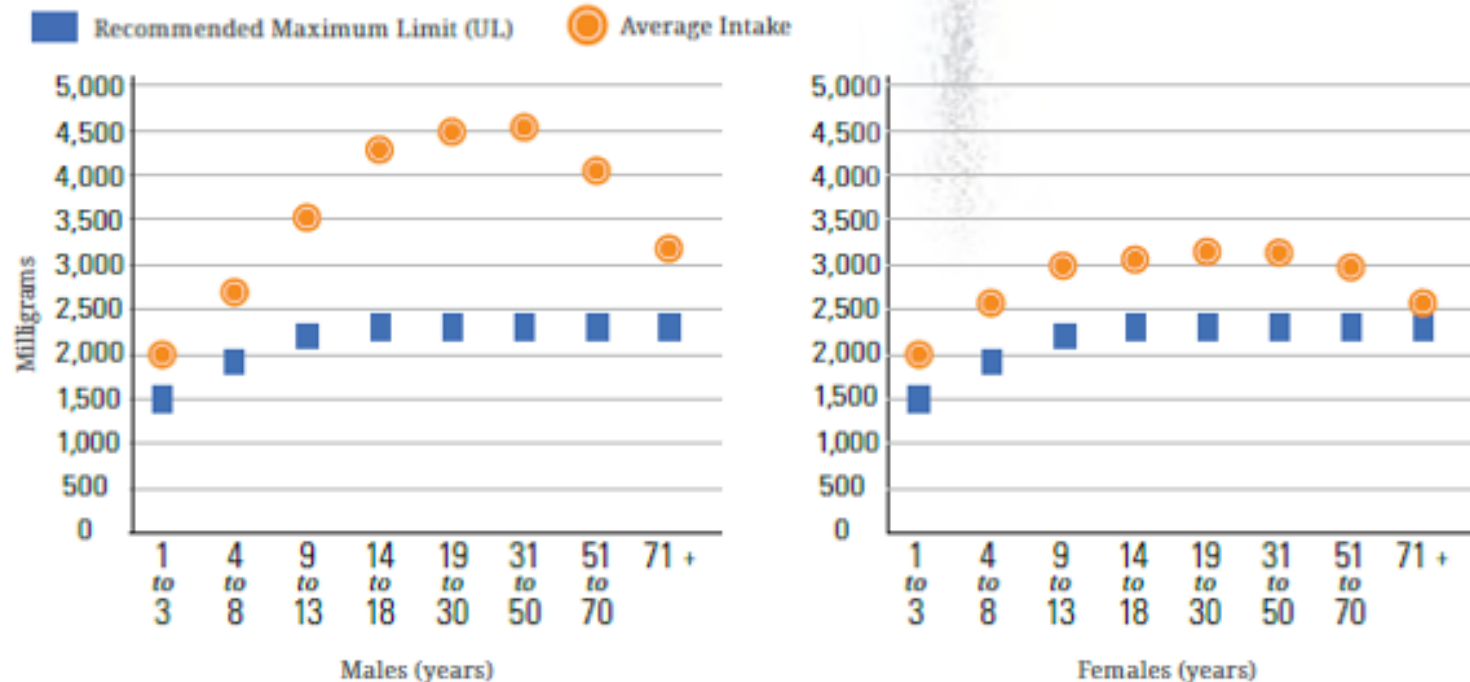
SODIUM

Control blood pressure by reducing sodium intake

AVERAGE DAILY SODIUM INTAKE

Figure 2-13.

Average Intake of Sodium in Milligrams per Day by Age-Sex Groups, Compared to Tolerable Upper Intake Levels (UL)

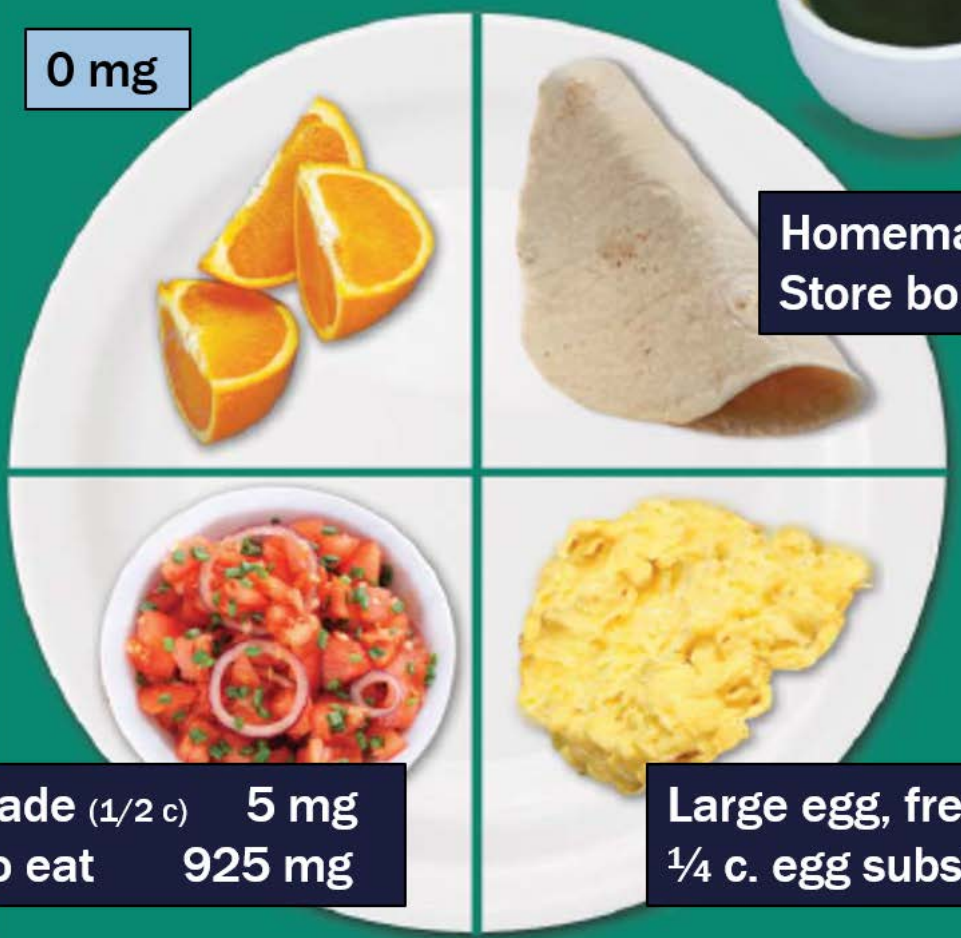


U.S. Department of Health and Human Services and U.S. Department of Agriculture 2015-2020 Dietary Guidelines for Americans. 8th Edition. December 2015.

<http://health.gov/dietaryguidelines/2015/guidelines/>

CHOOSE AND FIX FOODS WITH LESS SALT

BREAKFAST



0 mg

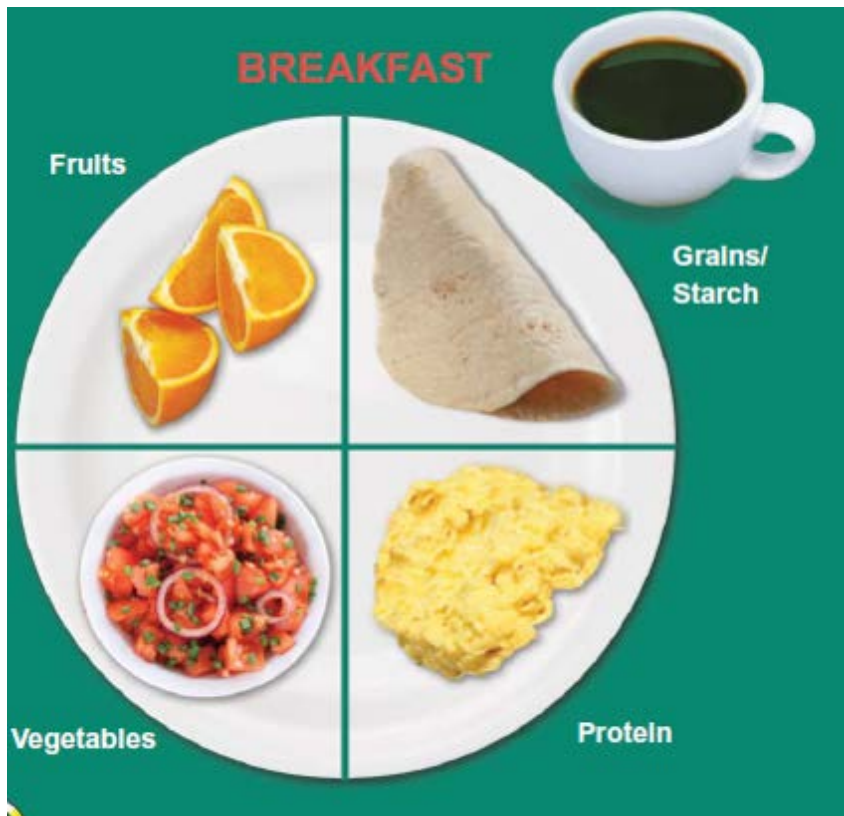
5 mg

Homemade	160 mg
Store bought	245 mg

Homemade (1/2 c)	5 mg
Ready to eat	925 mg

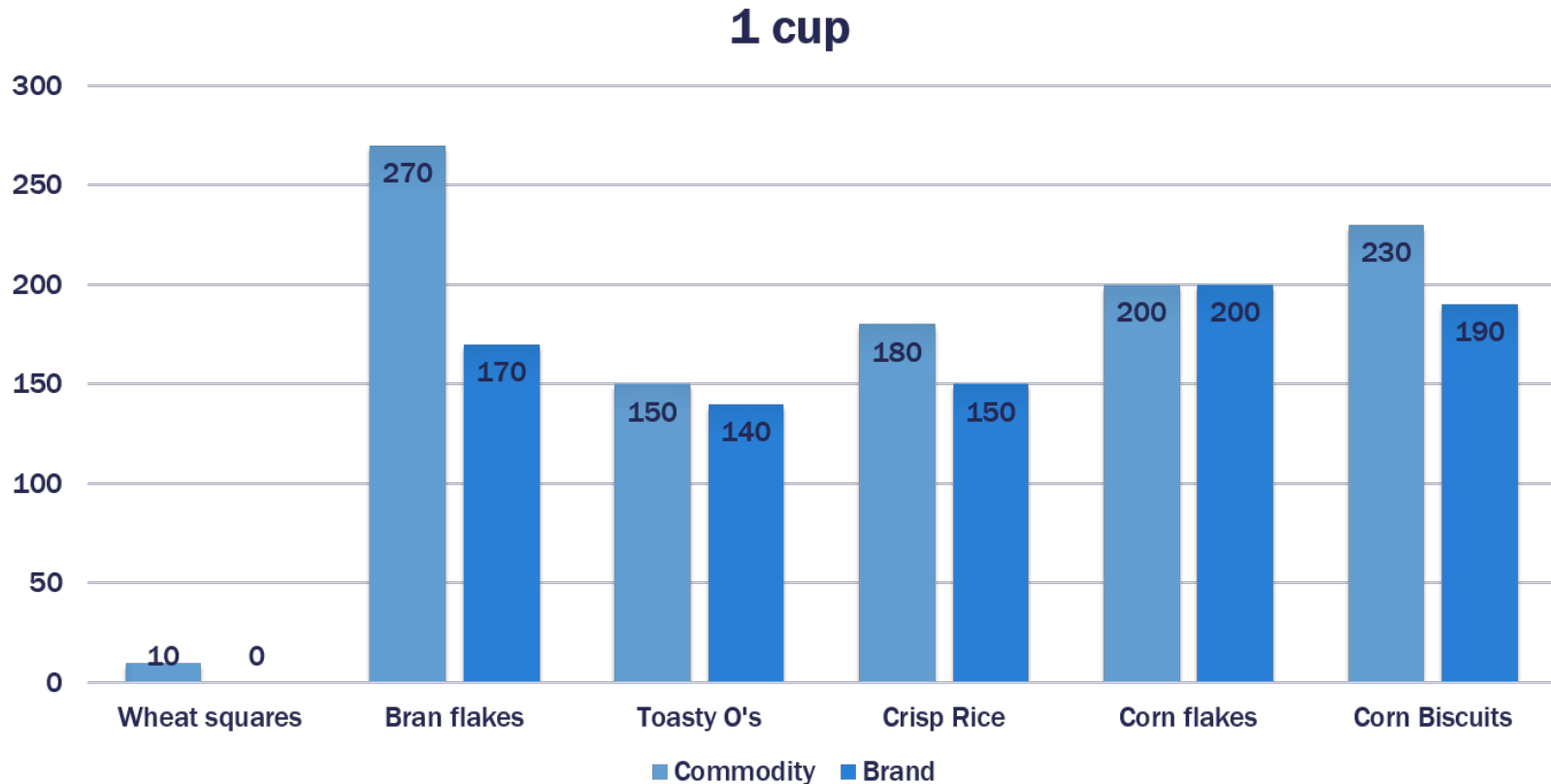
Large egg, fresh	90 mg
1/4 c. egg substitute	120 mg

BREAKFAST MEATS ARE HIGH IN SODIUM, SAVE FOR SPECIAL OCCASIONS



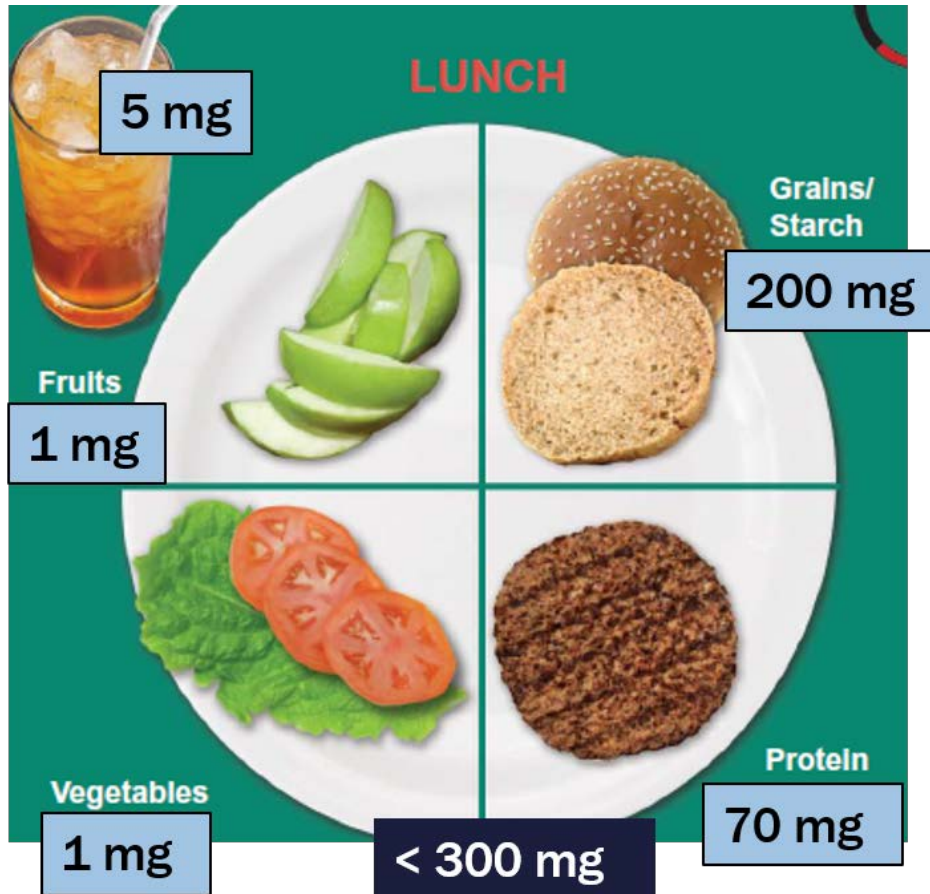
Bacon (1 strip)	105 mg
Turkey bacon (1 strip)	140 mg
Sausage link (1)	230 mg
Corned beef (1 ounce)	275 mg
Luncheon meat (1 ounce)	395 mg

CHECK SODIUM IN COLD CEREALS



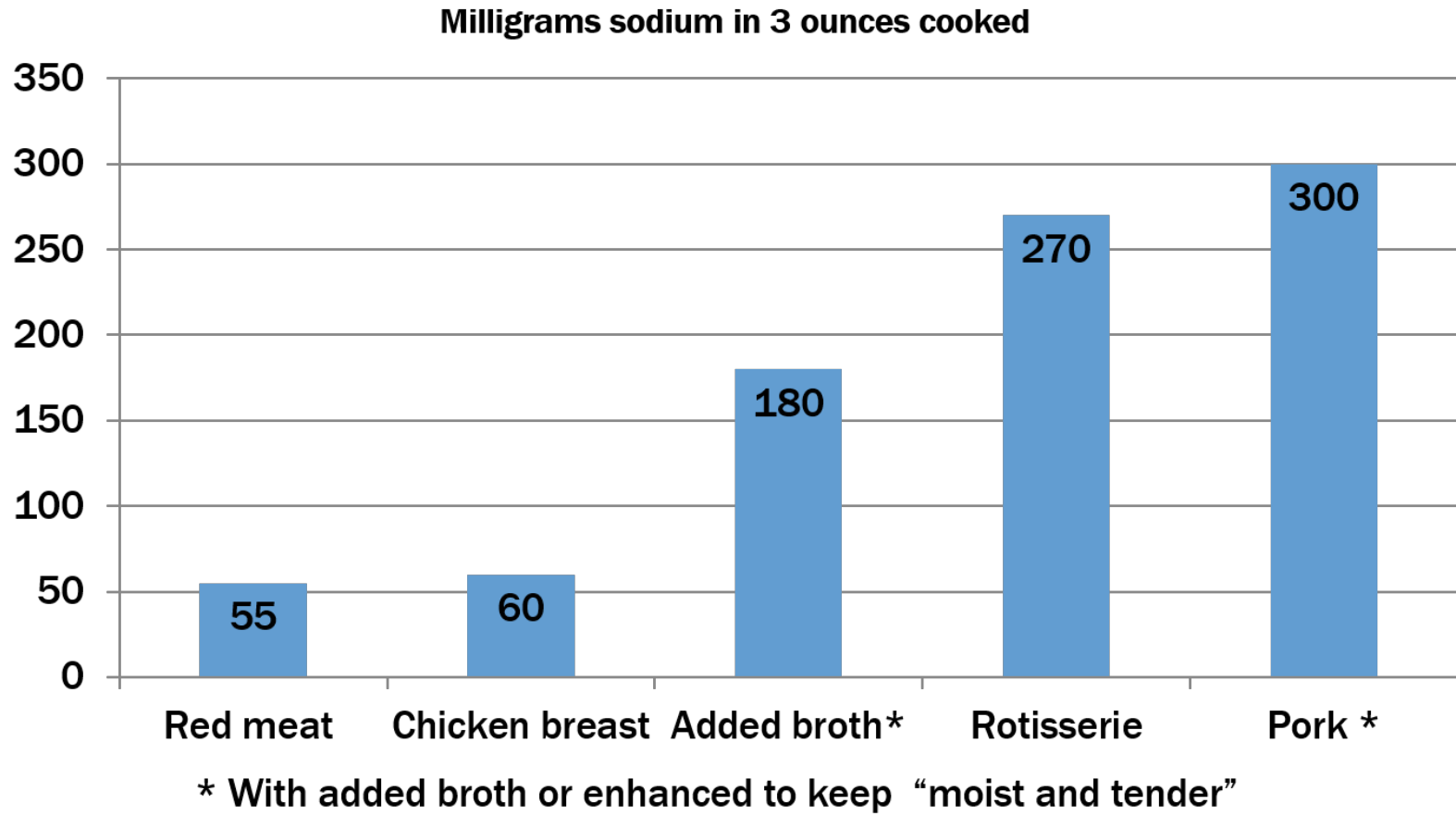
Values are rounded

MEALS MADE AT HOME CAN BE LOWER SODIUM



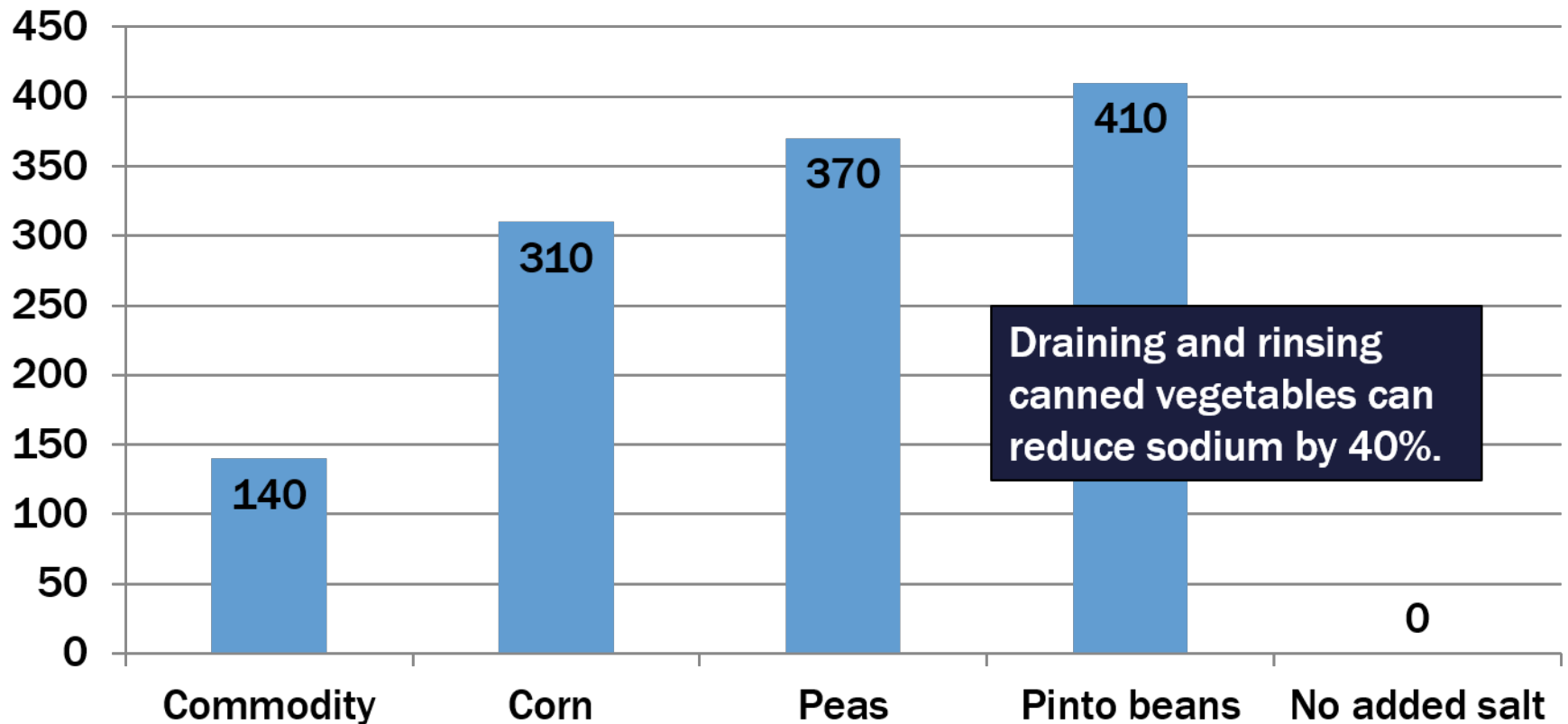
Fast Food Meal "Deal"	
Double cheeseburger	1,300 mg
Fries	230 mg
Cola	<u>20 mg</u>
	1,550 mg
4 nuggets (child's)	340 mg
Fries	<u>80 mg</u>
	420 mg

SODIUM MAY BE ADDED TO “FRESH” PORK AND POULTRY



COMMODITY CANNED VEGETABLES ARE LOWER IN SODIUM THAN MOST BRANDS

$\frac{1}{2}$ cup serving



PROTEIN

Reduce protein intake, if excessive.

Protein contains nitrogen, sodium, phosphorus and potassium.

PROTEINS ARE NUTRIENT-RICH

- We need protein to make protein.
- Proteins are made of amino acids.
 - Source of dietary nitrogen
- Proteins also have phosphorus and potassium (and sodium, and may have added sodium).
- Also contribute to iron, zinc, some B vitamins, and calcium.
- Dried beans and peas are rich in fiber.

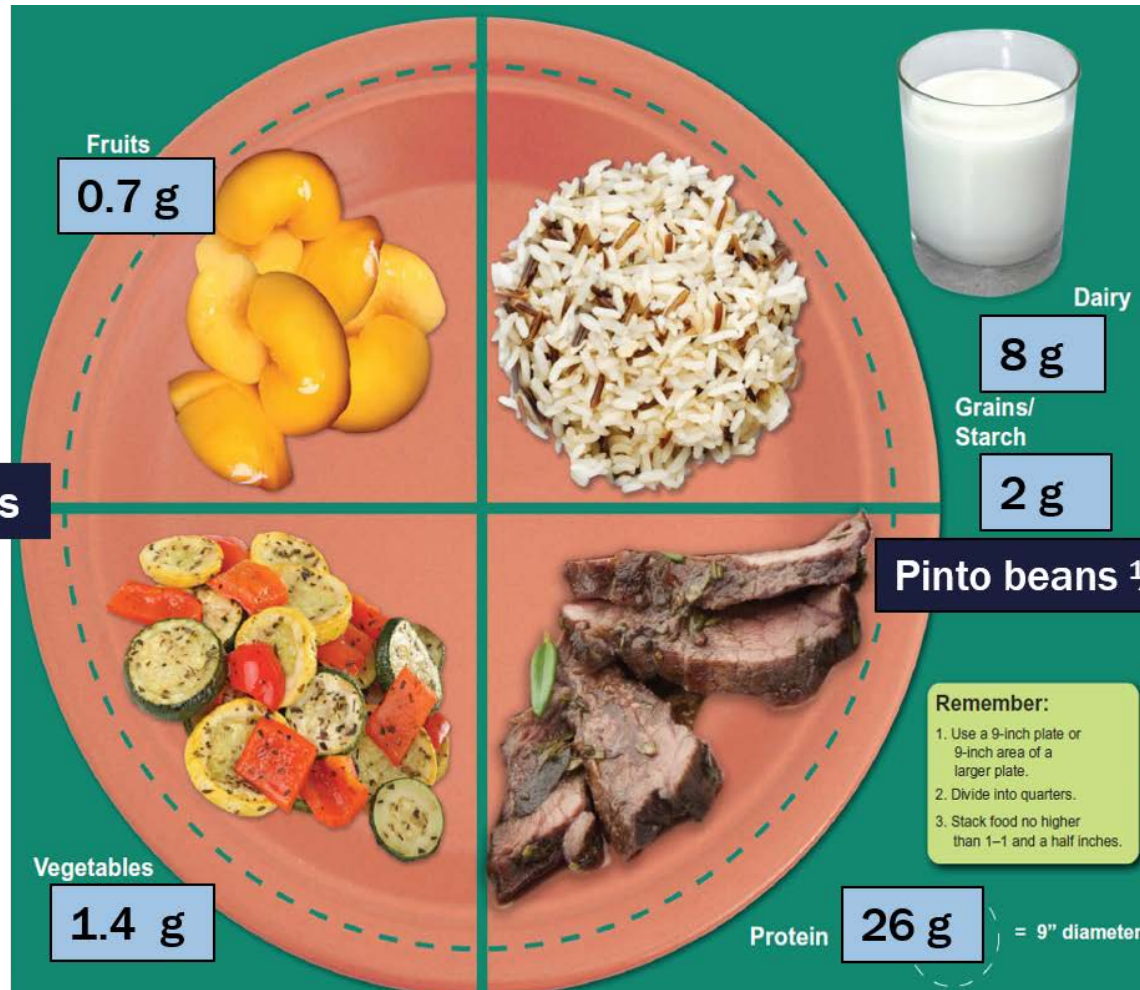
EAT THE RIGHT AMOUNT AND TYPE OF PROTEIN (CONT.)

g = grams

Women 46 g/day

Men 56 g/day

Total: 38 grams



DAIRY AND OTHER BEVERAGES ADD UP

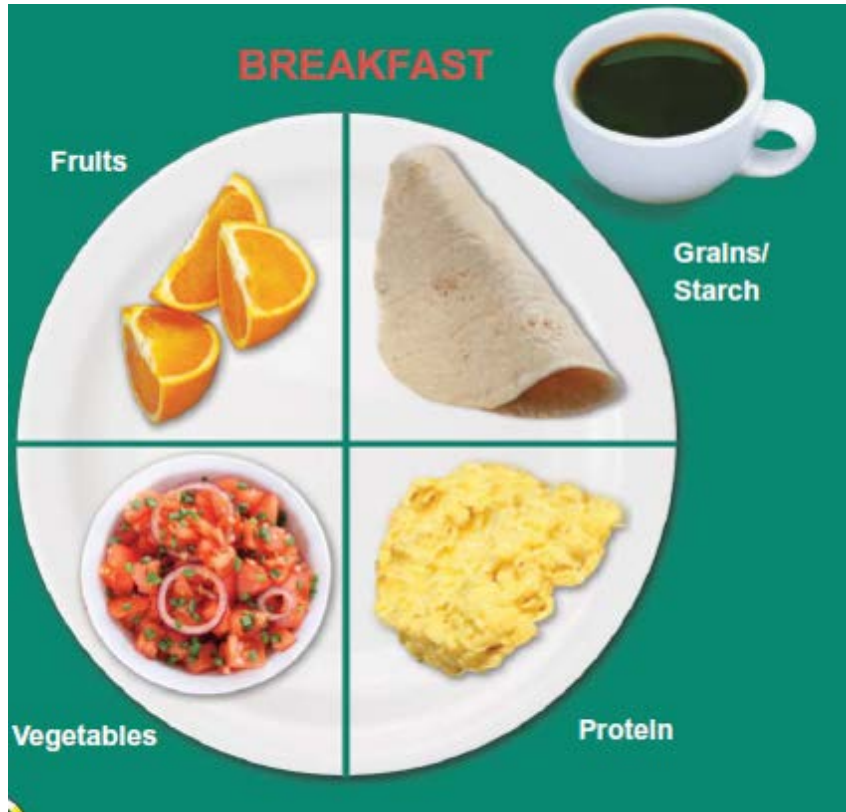
1 cup	Protein (grams)	Phosphorus (milligrams)	Potassium (milligrams)
1% milk	8	230	370
Dry milk (prepared)	8	230	390
Canned milk (1/2 c.)	8	255	380
Protein-fortified milk	10	275	445
Nonfat light yogurt (6 oz.) Strawberry banana	5	150	250
Greek yogurt, plain (6 oz.)	17	230	240
Soy milk, original	6	105	295
Almond milk, plain	1	25	175
Nutrition shake (14 oz) Chocolate	25	175	1090

PROTEINS CONTRIBUTE TO INTAKES

3 ounces	Sodium milligrams	Phosphorus milligrams	Potassium milligrams
Beef roast	55	150	200
Canned beef*	285	120	195
Chicken breast	60	195	220
Canned chicken*	230	135	160
Chicken, breast, rotisserie	215	246	295
Ground bison	70	175	290
Pork chop	65	215	280
Pork chop, added solution	180	270	440
Canned salmon	340	325	285

* Commodity

EGG WHITES ARE LOW IN PHOSPHORUS...THE EXCEPTION



1 ounce	Protein (g)	Phosphorus (mg)	Potassium (mg)
Egg (large)	6	100	80
Egg white (2)	7	10	110
Egg mix (2 tbsp)*	6	80	65
Egg sub. (liquid)	6	45	130

NEXT STEP: CHOOSE FOODS WITH LESS PHOSPHORUS

- **Reducing protein intake = less phosphorus**
- **Phosphorus found naturally in foods is not all absorbed**
- **Phosphorus additives are readily absorbed**
- **Phosphorus is added to many foods**
 - **Phosphoric acid in cola and iced tea**
 - **Sodium phosphate in pork or poultry**

LOOK FOR P-H-O-S IN THE INGREDIENTS

Example (Beef Stew- canned)

INGREDIENTS: REHYDRATED POTATOES (WATER, POTATOES, SODIUM ACID PYRO**PHOSPHATE**), BEEF (BEEF, WATER, SALT, SODIUM **PHOSPHATE**)

Phosphorus additives may be found in:

- Prepared frozen foods
- Dry food mixes
- Packaged meats
- Bread & baked goods
- Soup
- Yogurt
- Carbonated beverages (e.g.: cola, iced tea, orange pop)

PHOS additives may
contribute > 700 mg
phosphorus per day

Leon JB, Sullivan CM, Sehgal AR. The Prevalence of Phosphorus-Containing Foods Additives in Top-Selling Foods in Grocery Stores. JRN Vol 23,(4) 2013 265-270

NEXT STEP: CHOOSE FOODS WITH THE RIGHT AMOUNT OF POTASSIUM

- Reducing protein intake = less potassium
- New label (2018) will list Potassium
- Low sodium items may have potassium chloride instead of sodium chloride

Item	Serving	milligrams
Chocolate powder, ready to mix, no added sugar	2 tablespoons	190
Coffee, brewed	8 ounces	115
Coffee, instant, prepared	8 ounces	70
Protein powder, soy	1 scoop	420
Protein powder, whey isolate	3 scoops	750

POTASSIUM IN VEGETABLES

LOW (200 mg or less)

- Bell peppers
- Broccoli (fresh)
- Cabbage
- Carrots
- Cauliflower
- Celery and onions (raw)
- Corn
- Cucumber
- Green beans
- Lettuce
- Okra

HIGH (over 200 mg)

- Acorn and butternut squash
- Avocado
- Beet and other greens
- Broccoli (cooked)
- Brussels sprouts (cooked)
- Chile peppers
- Dried beans and peas
- Mushrooms (cooked)
- Potato, sweet potato, yam
- Pumpkin
- Tomato/tomato juice

POTASSIUM IN FRUIT

LOW (200 mg or less)

- Apple/apple juice
- Berries
- Cranberry juice
- Fruit cocktail
- Grapes/grape juice
- Honeydew melon
- Lemons and limes
- Pears
- Peaches
- Pineapple
- Watermelon

HIGH (over 200 mg)

- Apricots (fresh)
- Banana
- Cantaloupe
- Dates
- Nectarines
- Kiwi
- Prunes/prune juice
- Orange/orange juice
- Raisins

CHECK INGREDIENTS FOR ADDITIVES!

Cola (Diet)

CARBONATED WATER,
CARAMEL COLOR,
ASPARTAME,
PHOSPHORIC ACID,
POTASSIUM BENZOATE,
NATURAL FLAVORS,
CITRIC ACID, CAFFEINE

12 ounces

40 mg sodium
32 mg phosphorus
28 mg potassium

Ready to Serve Low Sodium Chicken Soup

CHICKEN STOCK,
CHICKEN MEAT, EGG
NOODLES.....
POTASSIUM CHLORIDE,
DEHYDRATED GARLIC,
FLAVORING, SPICE,
SODIUM PHOSPHATE,
BETA CAROTENE FOR
COLOR

1 container

120 mg sodium
No data on phosphorus
490 mg potassium

Diet Peach Tea

WATER, CITRIC ACID,
TEA, NATURAL FLAVOR,
SODIUM METAHEXA-
PHOSPHATE, MALIC
ACID, POTASSIUM
BENZOATE, POTASSIUM
SORBATE, SUCRALOSE,
CITRUS PECTIN,
ACESULFAME
POTASSIUM, CALCIUM
DISODIUM EDTA

16.9 oz bottle

180 mg sodium
96 mg phosphorus
60 mg potassium

EATING RIGHT FOR CKD (CONT.)

FIRST STEPS

- Choose and prepare foods with less salt and sodium
- Eat the right amount and type of protein
- Choose foods that are healthy for your heart

NEXT STEPS

- Choose foods with less phosphorus
- Choose foods with the right amount of potassium

TIP SHEETS FOR NUTRIENTS

Eating Right for Kidney Health

Tips for People with Chronic Kidney Disease (CKD)

What you eat and drink can help slow down chronic kidney disease. Some foods are better for your kidneys than others. Cooking and preparing your food from scratch can help you eat healthier.

These tips will help you (pages 1 and 2) are in (page 3) may become

Work with your dietitian

THE FIRST STEP

STEP 1
Choose and prepare your food
Why? To help control your blood pressure and keep your kidneys healthy.

STEP 2
Eat the right amount of food
Why? To help keep your weight healthy.

STEP 3
Choose foods that are good for your heart, and kidneys

Sodium

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What Is Sodium?

Sodium is a part of salt. Sodium is found in "fast" foods. It is also found in many other foods.

Why Is Sodium Important?

Eating less sodium helps lower blood pressure below 140/90 mmHg.

One of the kidneys' important jobs is to filter out extra sodium from your body and make your blood healthy.

How Much Sodium Should I Eat?

Most people need to eat less sodium. The National Kidney Foundation recommends that people with CKD eat no more than 2,000 milligrams of sodium each day. Many restaurants add a lot of sodium to their food.

Foods Lower in Sodium

- Fresh or frozen fruits and vegetables
- Fresh meat, poultry, seafood
- Low- and reduced-sodium frozen foods

Foods Higher in Sodium

- Bacon, corned beef, ham, hot dogs
- Boxed mixes, like hamburger mix
- Canned tomato products, including soups
- Cottage cheese
- Frozen meals
- Pretzels, chips, crackers, salted nuts
- Seasoning mix and sauce packets
- Some ready-to-eat cereals, baked goods

Protein

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What Is Protein?

Protein is in many foods that you eat. Protein can be found in foods from animals and from plants. Most diets include both types of protein. Protein provides the building blocks that help maintain and repair muscles, organs, and other parts of the body.

Animal-protein Foods

- Meat, such as pork, beef, chicken, turkey, duck
- Eggs
- Dairy products, such as milk, yogurt, cheese
- Fish

Plant-protein Foods

- | High Protein | Low Protein |
|--|----------------------------|
| • Beans, peas, lentils | • Bread, tortillas |
| • Soy foods, such as soy milk, tofu | • Oatmeal, grits, cereals |
| • Nuts and nut spreads, such as almond butter, peanut butter, soy nut butter | • Pasta, noodles, rice |
| • Sunflower seeds | • Rice milk (not enriched) |

Why Is Protein Important for People with CKD?

When your body uses protein, it produces waste. This waste is removed by the kidneys. Too much protein can make the kidneys work harder, so people with CKD may need to eat less protein.

Animal protein includes all of the building blocks that your body needs. Plant proteins need to be combined to get all of the building blocks that your body needs.

Phosphorus

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What Is Phosphorus?

Phosphorus is a mineral that helps keep your bones healthy. It also helps keep blood vessels and muscles working. Phosphorus is found naturally in foods rich in protein, such as meat, poultry, fish, nuts, beans, and dairy products. Phosphorus is also found in many medicines.

Why Is Phosphorus Important?

When you have CKD, phosphorus can build up in your blood. This can lead to bone disease, muscle weakness, and more likely to have heart problems. Most people with CKD need to limit their phosphorus intake.

Your health care provider can help you understand how much phosphorus you should eat.

Potassium

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What Is Potassium?

Potassium is a mineral that helps your nerves and muscles work the right way.

Why Is Potassium Important?

Some people with CKD have medicines that can lower their potassium levels. Your health care provider can help you understand how much potassium you should eat.

How Do I Know If I Have Too Little Potassium?

People often do not feel any symptoms. Your health care provider will check the level of potassium in your blood.

How Do I Get More Potassium?

Eat smaller portions of fruits, vegetables, and dairy. Add herbs and spices to your food. Do not use potassium chloride salt substitutes. If you have diabetes, you should not eat sugary fruits. If you have diabetes, you should not eat sugary fruits.

Eat These Foods

- White rice
- White bread
- Cooked rice
- Rice milk (not enriched)

How to Read a Food Label

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If you have CKD, you may need to limit some nutrients in your diet such as sodium, phosphorus, or potassium. You should limit saturated and trans fats, too. Read the food label to help make healthy food choices for your kidneys.

- Check the Nutrition Facts label for sodium.
- Check the ingredient list for added phosphorus and potassium.
- Look for claims on the label, like "low saturated fat" or "sodium free."

What Should I Look for on the Nutrition Facts Label?

Look for sodium on the Nutrition Facts label. Some Nutrition Facts labels will list phosphorus and potassium, too, but they do not have to.

The amount listed is for one 1-cup serving. If you eat two servings, the amount doubles.

One serving has 660 milligrams of sodium.

Nutrition Facts	
Serving Size: 1 cup (228g)	
Servings Per Container: 2	
Amount Per Serving	
Calories: 260	Calories from Fat: 120
% Daily Values*	
Total Fat 13g	20%
Saturated Fat 5g	25%
Trans Fat 2g	
Cholesterol 30mg	10%
Sodium 660mg	28%
Total Carbohydrate 31g	10%
Dietary Fiber 0g	0%
Sugars 5g	
Protein 5g	
Vitamin A 4%	Vitamin C 2%
Calcium 15%	Iron 4%

This package has two 1-cup servings.

One serving has 28% Daily Value of sodium. 5% or less is low. 20% or more is high.

For this food label, 28% Daily Value is high for sodium.

ACCORDING TO THE CDC

Patients with diabetes and their families can:

- **Ask about being tested for kidney disease.**
- **Check their blood pressure and blood sugar regularly; talk with their healthcare provider about goals.**
- **Talk with their healthcare provider if they are having problems getting or taking their medicines.**
- **Reduce salt intake to lower blood pressure and protect their kidneys.**

<https://www.cdc.gov/salt/index.htm>

THANK YOU

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RESOURCES

<https://www.cdc.gov/mmwr/volumes/66/wr/pdfs/mm6601.pdf>

<https://www.cdc.gov/vitalsigns/pdf/2017-01-vitalsigns.pdf>

National Kidney Disease Education Program website <https://www.niddk.nih.gov/health-information/health-communication-programs/nkdep/Pages/default.aspx>

<https://www.ihs.gov/diabetes/clinician-resources/soc/kidney-care/#SECTION1>

U.S. Department of Health and Human Services and U.S. Department of Agriculture. *2015-2020 Dietary Guidelines for Americans*. 8th Edition. December 2015. Available at: <http://health.gov/dietaryguidelines/2015/guidelines/>.

<https://ndb.nal.usda.gov/ndb/>

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Leon JB, Sullivan CM and Sehgal AR. The Prevalence of Phosphorus-Containing Foods Additives in Top-Selling Foods in Grocery Stores. *Journal of Renal Nutrition*. 2013; 23(4):265-270.