CHRONIC KIDNEY DISEASE
WHAT CAN YOU EAT??
Chronic Kidney Disease

- CKD is a progressive disease that can be delayed

- Serum creatinine is often used to diagnose kidney disease, but now there is a more accurate measure - GFR

- Glomerular filtration rate (GFR) is a better marker of kidney function and is used to stage the level of kidney disease

ANOTHER EARLY MARKER IS PROTEIN IN THE URINE
<table>
<thead>
<tr>
<th>Stage</th>
<th>GFR</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>$\geq 90$</td>
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<tr>
<td>2</td>
<td>60-89</td>
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<tr>
<td>3</td>
<td>30-59</td>
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<td>4</td>
<td>16-29</td>
</tr>
<tr>
<td>5</td>
<td>$\leq 15$</td>
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Goals for CKD Management

- Blood pressure control
- Blood glucose control
- Avoiding drugs that damage the kidney
- Anemia management
  - Blood /stool samples
  - Medication to treat anemia
DELAYING PROGRESSION OF CKD

• STRICT GLYCEMIC CONTROL
  – FASTING GLUCOSE  80 – 120
  – BEDTIME GLUCOSE 100 – 140
  – HbA1C equal to or less than 6.5

• STRICT BLOOD PRESSURE CONTROL: 130/80 for CKD patients
  – weight loss, regular exercise, no alcohol, low salt

• ACEI AND ARBs
Daily exercise is usually encouraged!
What causes kidney disease?

- Diabetes
- Untreated high blood pressure
- Inflammation
- Heredity
- Chronic infection
- Obstruction
- Accidents
What is kidney failure?

- When kidneys stop working or when the level of working is less than 15%

- The result is a build-up of fluids and chemical wastes in the body

- This condition is life-threatening unless treated by dialysis or kidney transplantation
How do you treat patients with kidney disease?

- Diet and fluid management
- Medications
- Kidney dialysis
  - Hemodialysis
  - Peritoneal dialysis
  - Home Hemodialysis
- Kidney transplantation
- Non-treatment
Typical emotional reactions

- Feelings
  - Denial
  - Acceptance
  - Depression
  - Anger
  - Fear
  - Guilt

- Having any or all of these feelings is normal and to be expected.
DIET AND KIDNEY DISEASE

ONE MAJOR FUNCTION OF THE KIDNEY IS TO FILTER WASTE PRODUCTS FROM THE BLOOD

IN KIDNEY DISEASE THIS FILTERING ABILITY IS LOST
Why is diet important?

- Managing your diet can slow your renal disease
- Your diet affects how you feel
- The need for dialysis may be delayed
Controlling your diet

The foods you need to control depend on your stage of kidney disease, but may include:

- Potassium
- Sodium
- Phosphorous
- Fluid
- Protein
- Glucose (if diabetic)
# FOODS OKAY TO EAT ON A RENAL DIET

<table>
<thead>
<tr>
<th>NON DAIRY PRODUCTS</th>
<th>DAIRY PRODUCTS</th>
<th>MEATS</th>
<th>SEASONINGS</th>
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<tbody>
<tr>
<td>COOKING OILS</td>
<td>BUTTER</td>
<td>BEEF</td>
<td>ALLSPICE, BASIL</td>
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<tr>
<td>MARGARINE</td>
<td>CREAM</td>
<td>CHICKEN</td>
<td>BAY LEAF</td>
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<tr>
<td>MAYONNAISE</td>
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<td>CHICKEN LIVERS</td>
<td>CINNAMON, CLOVES,</td>
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<tr>
<td>MIRACLE WHIP</td>
<td>WHIPPING CREAM</td>
<td>EGGS</td>
<td>CURRY POWDER</td>
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<td>MOCHA MIX FROZEN</td>
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<td>FISH</td>
<td>DILL, GARLIC, GINGER</td>
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<tr>
<td>DESSERTS</td>
<td></td>
<td>LAMB</td>
<td>HOT PEPPERS, LEMON,</td>
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<tr>
<td>NON DAIRY</td>
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<td>NUTMEG, OREGANO</td>
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<td>TUNA</td>
<td>PARSLEY, SAGE,</td>
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<td>TURKEY</td>
<td>TABASCO SAUCE</td>
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<td>VEAL</td>
<td>THYME, ROSEMARY</td>
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**FRESH IS BEST!!**
<table>
<thead>
<tr>
<th>BREADS</th>
<th>FRUITS</th>
<th>VEGETABLES</th>
<th>DESSERTS</th>
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<tr>
<td>BAGELS</td>
<td>APPLES</td>
<td>ASPARAGUS</td>
<td>ANGEL FOOD CAKE</td>
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<td>APPLE JUICE</td>
<td>BEETS</td>
<td>APPLE PIE/DANISH</td>
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<td>APPLESAUCE</td>
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<td>BLACKBERRIES</td>
<td>CAULIFLOWER</td>
<td>PIE/DANISH</td>
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<td>CELERY,</td>
<td>BUTTER COOKIES</td>
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<td>ENGLISH MUFFINS</td>
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<td>CORN</td>
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<td>MUSTARD</td>
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<td>HONEY,JAM,JELLY</td>
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<td>SOUR BALLS, SYRUPS</td>
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Protein

- PROTEIN IS A NECESSARY NUTRIENT AND MUST BE EATEN DAILY
- Protein helps keep you healthy by helping you fight off infections and promote healing
- Protein is also used by the body to:
  - Repair tissue
  - Make hormones, antibodies and enzymes
  - Help balance acid-base, fluid and electrolytes

- IN KIDNEY DISEASE THE AMOUNT OF PROTEIN EATEN MAY NEED TO BE RESTRICTED
Protein

- Protein is found in almost all foods. When your body breaks down protein, a waste product called urea is made.

- When your kidneys are not working well, urea is not removed as it should be and can build up inside your body.

- Side effects of a high urea level are fatigue, tiredness, and poor appetite.

- By decreasing the amount of protein you eat, you can help your kidneys have a lighter workload, with less urea to clean out.
HBV - High quality protein
– meats, fish, chicken, turkey, eggs
4-6 ounces daily

Lower value proteins in vegetables and grains
PHOSPHORUS
PHOSPHORUS

- Phosphorus is a mineral often found in protein.
- Too much phosphorus may accumulate in chronic kidney disease.
- You will probably need to control the phosphorus in your diet.
- You may need to take a phosphate binder to prevent it from getting too high.
High levels of phosphorus in the blood can cause:

- Too much phosphorus in the blood can weaken bones and make them more likely to break and develop renal bone disease.
- It can cause low blood calcium, which causes calcium to be taken from the bones.
- Calcification or hardening of tissues when phosphorus and calcium form hard crystals which deposit in organs and arteries.

This can lead to bone and heart problems that could cause hospital stays and in some cases death.
HIGH PHOSPHORUS FOODS

Dairy products including: Milk, yogurt, cheese, ice cream, custard, pudding

Chocolates or chocolate containing foods: such as candy, brownies, chocolate cake and cookies

Dried beans and peas, pork and beans, soybeans, lentils

Liver, sardines, organ meats, most fast foods, hot dogs, processed pork products

Peanuts, other nuts, nut butters
HIGH PHOSPHORUS FOODS

Dark colas, beer, hot chocolate
Pancakes, waffles, baking soda biscuits,
bran cereals, oatmeal,
whole wheat bread

Food additives: sodium tripolyphosphate,
sodium hexametaphosphate
potassium tripolyphosphate, phosphoric acid
tetrasodium pyrophosphate
Potassium

- Potassium is a mineral that helps muscles and nerves work correctly.
- Damaged kidneys may cause a build-up of potassium in your body.

Major sources of potassium include:
- Milk
- Potatoes
- Bananas
- Oranges
- Dried Fruit
- Legumes
- Nuts
- Salt substitute
- Chocolate
...and this dish is totally potassium-free!
What is potassium and why is it important to you?

Potassium is a mineral found in many of the foods you eat. It plays a role in keeping your heartbeat regular and your muscles working right.

It is the job of healthy kidneys to keep the right amount of potassium in your body.

However, when your kidneys are not healthy, they may not clean the blood as well and potassium may build up in the body.

National Kidney Foundation
Laboratory ranges for CKD

**Low range**  
less than 3.5 mEq/L

**Safe range**  
3.5 - 5.5 mEq/L

**Unsafe range**  
5.6 - 6.0 mEq/L

**Dangerous**  
more than 6.0 mEq/L

*Remember a very low potassium can be as dangerous as a very high potassium*
HIGH POTASSIUM FOODS

- Tropicana Pure Premium Orange Juice (8 oz) - 450mg
- Winter squash (cooked) (1/2 cup) - 448mg
- Banana (1 medium) - 422mg
- Spinach (cooked) (1/2 cup) - 419mg
- Cantaloupe (1/4) - 368mg
- Skim Milk (8 oz) - 382mg
High potassium foods

Food type

Fruits
- Avocados
- Bananas
- Cantaloupe
- Dried fruits
- Honeydew
- Kiwi
- Mangos
- Oranges & orange juice
- Papaya
- Prune juice

Vegetables
- Artichoke
- Dried beans & peas
- Pumpkin
- Potatoes, French fries
- Spinach (cooked)
- Sweet potatoes
- Tomatoes, tomato sauce
- Vegetable juices
- Winter squash

Dairy
- Milk
- Yogurt

Miscellaneous
- Chocolate
- Molasses
- Salt substitute
- Seeds and nuts
Sodium

- Sodium is a mineral that can raise blood pressure
- Too much sodium can cause swelling, high blood pressure, weight gain and difficulty breathing

- Sodium is found in most processed foods, especially salt.
- Try using alternate food seasonings:
  - lemon and limes,
  - spices
  - seafood seasoning
  - Italian seasoning,
  - vinegars
  - Peppers
- Do not use any spice with “salt” in the name
Your tests reveal that you are retaining fluids!
LOW SODIUM DIET FOR CKD

IMPORTANT TO CHOOSE LOW SODIUM FOODS!

- 5% added while cooking
- 6% added while eating
- 12% from natural sources
- 77% from processed and prepared foods
AVOID THESE HIGH SODIUM FOODS:

**Smoked, cured or pickled meats:**
- Bacon
- Corned beef
- Dried meats or fish
- Luncheon meats
- Hot dogs and sausages
- Canned fish or meats
- Kosher Meats
- Salted pork
- Ham

**Salty snacks:**
- Potato Chips
- Pretzels
- Corn chips
- Salted crackers
- Salted nuts
- Salted popcorn
- Cheese curls

**Dairy products:**
- Buttermilk
- American cheese
- Blue cheese
- Cottage cheese
- Parmesan cheese
- Processed cheese products
Highly salted vegetables:

- All pickled vegetables
- Vegetable/Tomato juice
- Olives and pickles
- Canned vegetables
- Sauerkraut
- Vegetables with seasoned sauces

Miscellaneous:

- Regular canned or dehydrated soups
- Bouillon cubes
- Chewing tobacco

Seasonings: celery salt, popcorn salt, garlic salt, onion salt, monosodium glutamate (MSG)-found in meat tenderizers and Chinese food, soy sauce, teriyaki sauce, BBQ sauce

Avoid using commercially prepared foods:
- frozen dinners, any boxed foods-especially with seasoning packets
- canned foods, most fast foods

For additional information look at the labels
"How's the low-sodium diet coming along?"
Fluids

- Healthy kidneys remove fluids as urine
- You **may** need to restrict your fluid intake
- As kidney function declines, you may make less urine and fluids may build up in your body — **but watch the salt!!**
MANY PEOPLE IN EARLY CKD DO NOT HAVE TO RESTRICT THEIR INTAKE OF FLUIDS

- EATING TOO MUCH SALT / SALTY FOODS MAY CAUSE FLUID RETENTION
- PEOPLE WITH CHF ARE MOST LIKELY TO HAVE THEIR FLUIDS RESTRICTED
- THE NEPHROLOGIST / RN MOST LIKELY TO DOCUMENT AND ADVISE YOU ABOUT PROBLEMS WITH FLUID RETENTION
Do I need to limit calories?

- Calories are needed in your diet for energy and for maintaining your body weight.
- Lose weight only if needed.
- Weight loss may help you lower your BP and control diabetes.
Grocery shopping and cooking

- All of the foods in your diet are easy to find in your grocery store.
- Read all food labels for “hidden ingredients” such as salt, sodium chloride, potassium chloride, and MSG.
- For Recommended Cookbooks see website of: National Kidney Foundation of IL.
Dining out

- Once you understand your diet, you will be able to pick the correct foods to eat, whether you are at home or in a restaurant.
- Many restaurant foods are high in sodium - be careful!
- BEWARE OF FAST FOODS
How will I know that my diet is working?

The best indicators of how well you are following your diet are:

- Weight loss or gain
- Blood pressure
- Swelling of hands and feet
- Blood samples
**KNOW YOUR NUMBERS**

<table>
<thead>
<tr>
<th>Lab</th>
<th>Target range</th>
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<tbody>
<tr>
<td>Albumin</td>
<td>3.8 and above</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>2.7-4.6 (CKD stages 2-4)</td>
</tr>
<tr>
<td>Potassium</td>
<td>3.5 – 5.5</td>
</tr>
<tr>
<td>Blood pressure</td>
<td>130/80</td>
</tr>
<tr>
<td>Blood glucose (diabetics)</td>
<td>fasting 80-120 / HbA1C 6.5</td>
</tr>
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</table>

-----knowing these will help you plan your diet-----

**AND ASK FOR YOUR GFR**
"I’m afraid there’s not much I can do for you now. You should’ve come in sooner, before you got sick."
Thank you!

National Kidney Foundation™

AMGEN

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