How to Eat Right on Home Dialysis

When you are on dialysis, it is vital you control the amount of protein, sodium, fluid, phosphorus, potassium and calories that you eat or drink. This handout will help you with your daily meal plan, whether you are on peritoneal dialysis (PD) or home hemodialysis (HHD).

**Protein**

**What does protein do?**
Protein is needed for good health and to build and repair muscle. Protein also helps you fight off infections. Eating enough protein can help you live longer on dialysis. People on dialysis, especially those on PD, need to eat more protein. This is because some protein is lost during the dialysis process.

**How much protein can I eat?**
Your dietitian will tell you how many protein choices you will need in your meal plan to meet your body’s needs. Meat, fish, chicken and eggs are examples of good protein choices. Bread, cereal and vegetables have small amounts of protein.

Your daily protein prescription is __________________ grams per day.

Here are a number of protein choices you should eat each day.

Meat/Meat substitute ______________ choices daily

Each choice has 7 grams of protein. Each of these is equal to one choice:
- 1-ounce beef, chicken, lamb, pork, fish
- ¼ cup salmon, tuna, crab, lobster, clams
- ¼ cup cottage cheese
- 1 ounce or 5 medium shrimp
- 1 egg
- ¼ cup egg substitute
- 4 ounces tofu
- 2 tablespoons peanut butter
- ½ cup cooked beans, peas, lentils, or soybeans (edamame)
- *1-ounce natural cheese (Swiss, cheddar, etc)

*Cheese is higher in phosphorus and sodium.

*Beans, nuts, and peanut butter are higher in potassium and phosphorus.

**Milk Products (Choose 1 daily)**
Milk products are limited in your diet because they are high in phosphorus and potassium.

Each choice has 8 grams of protein. Each of these is equal to one choice:
- 1 cup milk
- 1 cup yogurt
- ¼ cup custard
- 1 cup (milk based) soup
- ½ cup ice cream
- 1 cup milk-based pudding
- *2½ cups non-dairy substitute

* Make sure a non-dairy substitute does not have phosphorus additives.
Starches
Starches help to give you energy, and some have fiber to help with constipation. You may need to limit starches if you are diabetic or are trying to lose weight. Also, your PD solution will provide a lot of extra carbohydrates. Because of this you may need to limit your starch intake. Starches do not add a major amount of protein to your diet.

Starch ________________choices daily

Each choice has 2 grams of protein. Each of these is equal to one choice:
- 1 slice of bread, muffin, 2-inch biscuit, or dinner roll
- *½ cup potatoes
- ½ cup cooked rice or pasta
- ½ cup cooked cereal
- ½ hamburger bun, English muffin, bagel
- ¼ cup dry cereal
- ¼ cup Grape-nuts®
- 2 - 4-inch pancakes
- 3 graham crackers (2-1/2-inch square)
- 6 saltines
- 2 ½ tablespoons flour
- 3 cups popcorn
- ½ of a 6-inch pita
- 1 - 7-inch flour tortilla
- 2-4 by ½ inch breadsticks

*Potatoes have a large amount of potassium.

Fat ________________choices per day (45 calories per serving)
- 1 teaspoon margarine, butter, shortening
- 2 tablespoons sour cream or liquid creamer
- 1 teaspoon mayonnaise
- 2 tablespoons cream cheese
- 1 teaspoon cooking oil
- 3 tablespoons non-dairy milk substitute
- 1 tablespoon salad dressing
- ¼ cup whipped topping
- 1 tablespoon powder creamer

Sodium (Salt)
What does sodium or salt do?
Salt is a mix of sodium and chloride. Sodium, a mineral, helps the body balance fluids. It exits the body through the urine. When your kidneys are sick, sodium can build up in your blood. This can make you thirsty. The more fluid you drink, the more your heart works to pump the fluid through your body. Over time, this can cause high blood pressure and congestive heart failure.

How much sodium can I eat?
How much sodium you need depends on the degree of kidney function you have. It also depends on the amount of urine you make and the type of dialysis you are on. Sodium needs for HHD range from 2000-3000 mg per day. Most people on PD will need to limit high sodium foods and table salt. If on PD, limiting sodium can help you use less higher dextrose solutions.
Avoid Food High in Sodium
Foods high in sodium (salt) include:

1. All salted or smoked meat/fish such as:
   - Bacon and Canadian bacon
   - Bratwurst
   - Canned tuna and meat entrees
   - Corned beef
   - Frankfurters, hot dogs
   - Herring, sardines, and smoked fish
   - Ham
   - Luncheon meats
   - Smoked sausage

2. Breads and rolls with salt toppings

3. Cheese and foods that contain cheese, such as:
   - Cheddar, Gorgonzola, Roquefort, Parmesan, etc
   - Cheese spreads, party dips, and processed cheese such as Velveeta® or American®
   - Pizza and lasagna
   - Alfredo sauce, cheese soup

4. Convenience and processed foods
   - Asian foods
   - Bouillon cubes
   - Frozen dinners
   - Gravy and sauce mixes
   - Packaged entrees, rice, potato, and noodle mixes
   - Pickles, olives, relish
   - Potato chips
   - Pot pies
   - Pretzels
   - Salted nuts, popcorn, and snack crackers
   - Sauerkraut
   - Spaghetti (store brand)
   - Soups: canned, frozen, or dehydrated.
   - Tomato juice, canned tomatoes, sauce, and paste

5. Seasonings
   - Lemon pepper
   - Horseradish
   - Meat tenderizers
   - Monosodium glutamate (MSG)
   - Salts: celery, garlic, onion, seasoned
   - Sauces: Barbeque, chili, meat, soy, Worcestershire

Do not use salt substitutes that have large amounts of potassium such as: Morton’s Salt Substitute®, No Salt®, Diamond Crystal®, Lite Salt.

Try these spices and herbs to cut the salt but not the flavor:
   - Durkee Smart Seasons®
   - Dried horseradish
   - Flavored pan sprays
   - Fresh garlic
   - Fresh dried herbs
   - Herbal Bouguet®
   - Lawry’s Seasoned Pepper®
   - Mrs. Dash® (all types)
   - Pepper: black, red, or white
   - Powder: onion or garlic
   - Scallions, onions, shallots
   - Spike® salt-free
   - Tabasco® sauce
   - Veg-it®
   - Pleasing® Mini-Mini Salt
**Fluid**

**What about fluid?**
Some people on dialysis need to limit their fluid intake. The amount of fluid you can drink safely is based on the amount of urine output. Drinking too much fluid between dialysis sessions, may cause:
- Shortness of breath
- Weight gain
- Your heart to work harder
- Swelling or edema
- Increased blood pressure

If you are on PD, you may need a higher dextrose solution to help remove the extra fluid. This will add extra sugar and calories. Home hemodialysis (HHD) often does not require extra fluid restriction.

**What are fluids?**
Fluids include all drinks, and foods that are liquid at room temperature or become liquid like broth soups, Jell-O®, ice cream, or ice.

**How can I control my thirst?**
- Drink from smaller cups, glasses, or cans
- Freeze juice and eat it like a popsicle
- Limit sodium intake

**Potassium and Phosphorus**

**What about potassium?**
People on PD or HHD often do not need to limit their intake of potassium. If you are told to lower the amount of potassium in your meal plan, your dietitian will talk with you about this.

**What does phosphorus do?**
Phosphorus, a mineral, is important for your bones and teeth. When your kidneys are sick, phosphorus builds in your blood. This pulls calcium from your bones. Your bones can become weak and prone to break. Calcium and phosphorus can settle in your soft tissues, your blood vessels and your heart. This causes damage to them.

**How much phosphorus can I eat?**
To keep your bones healthy, limit your phosphorus intake. Protein foods contain phosphorus and you do need plenty of protein. Because of this your doctor may also ask you to take a medicine with meals to bind phosphorus from the food you eat. When the phosphorus is bound with the binder medicine, it will be excreted in the stool. Examples of binder medicines include: Renagel, Renvela, Phoslo, Tums®, Fosrenol, Auryxia or Velphoro.

**What can I eat?**
Hopefully most of your phosphorus will come from good protein sources. Your dietitian will let you know what else you can eat.
## Foods with a Large Amount of Phosphorus

<table>
<thead>
<tr>
<th>Dairy products</th>
<th>Protein Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Milk</td>
<td>• Meat</td>
</tr>
<tr>
<td>• Cheese</td>
<td>• Poultry and fish</td>
</tr>
<tr>
<td>• Yogurt</td>
<td>• Eggs</td>
</tr>
<tr>
<td>• Custard and pudding</td>
<td>• Organ meats</td>
</tr>
<tr>
<td>• Ice cream and ice milk</td>
<td>• Dried beans and peas</td>
</tr>
<tr>
<td>• Casseroles with cheese</td>
<td>• Nuts, seeds, and peanut butter</td>
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<tr>
<td></td>
<td>• Soybeans and tofu</td>
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<tr>
<td></td>
<td>• Lentils</td>
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<tr>
<td></td>
<td>• Salmon and sardines</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Grain Products*</th>
<th>Other Foods</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Bran products</td>
<td>• Chocolate, cocoa</td>
</tr>
<tr>
<td>• Oatmeal</td>
<td>• Caramel</td>
</tr>
<tr>
<td>• Whole grain breads and cornbread</td>
<td>• Beer</td>
</tr>
<tr>
<td>• Wheat germ</td>
<td>• Carbonated colas</td>
</tr>
<tr>
<td>• Wheat germ</td>
<td>• Dried fruit</td>
</tr>
<tr>
<td>• Boxed cake/bread mixes</td>
<td>• Molasses</td>
</tr>
<tr>
<td></td>
<td>• Pizza</td>
</tr>
<tr>
<td>*Ok to use to help with constipation</td>
<td>• Fast food (from restaurants)</td>
</tr>
</tbody>
</table>

### Phosphorus Content of Soft Drinks

#### High Phosphorus
- Cola
- Diet cola
- Dr. Pepper®
- Cherry cola
- Some bottled iced teas

#### Low Phosphorus
- Ginger ale
- Grape soda
- Root beer
- Club soda
- Sprite®, 7-Up®, Slice®
- Orange soda (except Nehi®)

Many bottled drinks, processed meats, boxed baking items, and fast foods from restaurants contain phosphorus additives. Binders will not help much with these. Also, the phosphorus in these foods is absorbed into your blood nearly 100%. The phosphorus in more natural foods like meats, beans, and nuts are only absorbed 20-50%.

Examples of phosphorus additives include phosphoric acid, hexametaphosphate, or tricalcium phosphate. Always read the ingredients list of packaged foods for “phos” foods.
Resources
There are several cookbooks designed especially for people with kidney failure. These may help add variety to your diet.

Creative Kidney Cooking for the Whole Family by Rebekah Engum, RD

List of cookbooks on the National Kidney Foundation website:
https://www.kidney.org/atoz/content/list-cookbooks-kidney-patients

Websites (ask your kidney dietitian for a handout with more websites)
www.kidneyschool.com
www.Davita.com
www.kidney.org (The National Kidney Foundation)
http://www.nutritiondata.com/ to find nutrients in specific foods

Teach Back
What is the most important thing you learned from this handout?

What changes will you make in your diet/lifestyle, based on what you learned today?

If you are a UW Health patient and have more questions, please call one of the phone numbers listed below. You can also visit our website at www.uwhealth.org/nutrition.

Nutrition clinics for UW Hospital and Clinics (UWHC) and American Family Children’s Hospital (AFCH) can be reached at (608) 890-5500

Nutrition clinics for UW Medical Foundation (UWMF) can be reached at (608) 287-2770

Your health care team may have given you this information as part of your care. If so, please use it and call if you have any questions. If this information was not given to you as part of your care, please check with your doctor. This is not medical advice. This is not to be used for diagnosis or treatment of any medical condition. Because each person’s health needs are different, you should talk with your doctor or others on your health care team when using this information. If you have an emergency, please call 911. Copyright © 10/2018 University of Wisconsin Hospitals and Clinics Authority. All rights reserved. Produced by the Clinical Nutrition Services Department and the Department of Nursing. HF#186.