Renal Dietitians
a dietetic practice group of the
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Renal Nutrition Forum

A Peer Reviewed Publication of the Renal Dietitians Dietetic Practice Group

Summer 2009 Supplement

The Renal Dietitians Dietetic Practice Group (RPG) is leading the future of dietetics by promoting and supporting American Dietetic Association (ADA) members in the field of nephrology. Our vision is for RPG members to be leaders in providing scientifically based nutrition care and education for patients, the profession and the public. As a professional-interest group of the ADA, we draw on a set of core values to guide our actions as a practice group. We believe that our success of the practice group is a product of these shared values.

Our Core Values:

Customer Focus
We operate with consideration for the needs and expectations of internal and external customers.

Integrity
We hold ourselves to the highest of ethical standards and strive for excellence.

Life Long Learning
We encourage personal accountability for self competence and seek opportunities for continued learning.

Collaboration
We utilize the various talents of individuals by working together in diverse and productive teams.

Inclusivity
We demonstrate respect and sensitivity toward and appreciation for the backgrounds, differences, and points of view of others.

Social Responsibility
We guide our decisions and actions by considering economic, environmental and social implications.

In conjunction with the "Green Generation," RPG has taken action steps to reduce the carbon foot print of the practice group. This summer supplement issue of the *Renal Nutrition Forum* is being offered as an e-Forum. This issue was compiled from handouts sent by RPG members, and are geared toward patients and other providers. All were peer-reviewed.

RPG is committed to expanding timely publications for the RD and increasing member benefits. Feedback from our annual RPG Member Survey reinforced the desire for more practical ideas and educational materials to enhance everyday practice. We are pleased to provide this information for the health care professional working with CKD patients. We hope it will be a valuable resource to you.

Pamela S. Kent, MS, RD, CSR, LD
RPG Immediate Past Chair

Botanical Medicines & CKD Patients

Practice Tips, Guidelines & More for the Nephrology Professional

Potential Problems with Botanical Medicines & CKD

Alterations in: electrolytes, blood glucose, blood pressure, K+ levels/cardio profile
Interactions with anticoagulant therapies; potentiation of blood thinning
Drug-botanical & botanical-botanical interactions; potentiation of negative properties

Common Botanical Medicines that may be Harmful to CKD Patients

Aloe, Buckthorn, Capsicum, Cascara, Chapparal, Comfrey, Dandelion, Ephedra, Licorice, Mate, Nettle, Noni Juice, Pennyroyal, Rhubarb, Sassafras, Segrada, Senna
CAUTION-Anticoagulant properties: Ginger, Gingko Biloba, Garlic, Ginseng, Feverfew

General Guidelines for Botanical Medicine Products

Ensure products are clinically tested & reliable for potency/purity such as Nature Made Products
(Caution: adulteration of products with heavy metals, toxins, hormones, etc)
Consumer Lab Certification: www.consumerlab.com
NSF International Quality label: www.nsf.org
USP (US Pharmacopedia): www.uspverified.org

Botanical Practice Tips: Goal - Develop rapport, gain trust & promote informed patients!

- Listen first, avoid judgements, offer sound advice, promote patient empowerment
- Encourage patient to seek sound advice from licensed/credentialed professionals such as a Registered and Nephrology Dietitian!
- Review case reports in medical literature (Lancet-focus on case reports)
- Regarding botanical medicine dosing: be conservative, start with small doses
    - Initiate at 50% of suggested dose and titrate upward slowly
- Suggest using only one botanical product at a time to better assess single effect
- Avoid prolonged use & known toxic botanical medicines
    - Reassess +/- effects on regular 1-2 week basis
- Discourage use of botanicals with Rx drugs that have similar action/active ingredients such as: willow bark and aspirin or warfarin
- Discourage use of botanicals that alter absorption time of other medicines or supplements
- Suggest patient use a journal to record daily notes of negative & positive effects
- Discontinue botanical medicines immediately with symptoms of headache, nausea, or diarrhea
- Avoid taking botanical medicines & OTC or Rx drugs at same time
    - Suggested to take at least two hours apart

Helpful Resources

National Center for Complementary and Alternative Medicine @ http://nccam.nih.gov/
Phytochemical and Ethnobotanical Databases @ http://www.ars-grin.gov/duke/
Alternative Medicine Facts @ http://www.rosenthal.hs.columbia.edu/CAM.html
Herbal Research Foundation @ http://www.herbs.org
American Herbal Pharmacopoeia @ www.herbal-ahp.org
International Bibliographic Information on Dietary Supplements (IBIDS) Database @ http://ods.od.nih.gov
Alternative Medicine Foundation, Inc. @ http://www.herbmed.org
MEDLINEplus for Herbal Information @ http://www.nlm.nih.gov

Why What You Eat Matters for Chronic Kidney Disease

Kidneys remove extra fluid and waste products from blood. When your kidneys aren't working well, waste products can build up from the foods you eat and liquids you drink. A special diet can help control the buildup of waste products and improve how you feel.

When you have kidney disease, you may need to pay attention to the following in your diet:

- **Protein**: Before you start dialysis, you need a lower-protein diet to limit the amount of waste products in your blood. Once you start dialysis, you need more protein to replace what is lost during dialysis sessions. Talk to your dietitian to ensure you are getting the right amount of protein each day. Protein sources include beef, poultry, fresh pork, fish and seafood, and eggs.

- **Sodium** (salt): An unhealthy kidney is less able to remove excess sodium from the body. Too much sodium may cause high blood pressure, extreme thirst, and edema (swelling in your body from too much fluid). This can cause strain on your heart and lungs. To limit sodium/salt intake, limit or avoid: salting food at the table or during cooking, canned and processed foods, fast food, salted snacks, canned or dried soups, and salty seasonings (such as soy sauce, garlic salt, onion salt).

- **Potassium** is a mineral found in food that helps your muscles and heart work properly. Too much or too little potassium in the blood can be life-threatening. You may need to limit high-potassium foods like potatoes, tomatoes and tomato products, melons, oranges and orange juice, dairy products, and bananas. Also avoid all salt substitutes that contain potassium (such as Morton's Salt Substitute™, Morton's Lite Salt™ or No Salt™).

- **Phosphorus** is another mineral that may need to be limited in your diet if your blood levels are too high. When phosphorus builds up in the blood it can pull calcium out of your bones, making them brittle and weak. Dairy products (milk, cheese, yogurt, pudding, and ice cream) are especially high in phosphorus, but other foods you may need to limit include: whole grain foods, dried beans and peas, nuts, peanut butter, and colas. If you take phosphate-binding medications (such as PhosLo™, Renvela™, Fosrenol™), take them with your meals, as directed.

- **Calcium** often needs to be regulated in kidney disease. If calcium in the blood is low, calcium supplements may be recommended by your health care provider. If calcium is too high, avoid calcium-fortified foods and notify your provider if you take calcium supplements.

- **Fluids:** You may have to limit your intake of fluids because your kidneys may be less able to remove fluid from your body. Excess fluid can build up in your lungs, hands and feet, making it hard to breathe or painful to walk. Fluids include all beverages, soups and gravy, as well as all foods that are liquid at room temperatures, such as ice cream, sherbet, popsicles, ice and gelatin.

If you have diabetes, controlling your blood sugar can prevent further damage to your kidneys. Continue to follow your diabetic meal plan. If you have questions about how to include your new renal (kidney) diet into your diabetic diet, ask your dietitian for help.

Contact your health care provider or your dietitian if you have any questions or concerns.

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Common Foods May Contain Hidden Phosphorus

Food companies are now adding phosphorus to many foods to help preserve quality and flavor. These phosphorus additives can result in high blood phosphorus levels, increasing your health risks. The following lists describe foods and beverages that should be limited or avoided, as well as foods that are better choices.

Beverages

Recommended

- 7Up® – all flavors
- A&W Cream Soda® & root beers
- Aquafina Sparkling® waters
- Barq's Root Beer®
- Canada Dry® Club Soda
- Canada Dry® Ginger Ale
- Country Time® – canned drinks
- Crystal Light® – regular lemonade, pineapple-orange, strawberry, all teas, most Sunrise flavors
- Diet Rite® – non colas
- Fresca®
- Mello Yellow®
- Minute Maid® canned drinks
- Mountain Dew®
- Mug Root Beer®
- Ocean Spray® drink mixes
- Orange Crush®
- Schweppes® Ginger Ale
- Sierra Mist®
- Slice® flavored beverages
- Sprite® & Sprite Zero®
- Squirt® – all
- Sunkist® Orange
- V8 Splash®
- Vault®
- Vernor's® Ginger Ale
- Welch's® fruit flavors

Avoid (contain "phosphoric acid" or other "phosphate" on ingredient lists)

- Aquafina Flavor Splash® waters
- Canned & bottled iced teas
- Coca-Cola® – all
- Carver's® Ginger Ale
- Country Time® – all drink mixes
- Crystal Light® – Sunrise Classic Orange and other than above
- Dasani® – flavored varieties
- Diet Rite® Cola & Cherry Cola
- Dr. Pepper® – all varieties
- Fanta®
- Fruit$_2$0® & Fruitworks®
- Hawaiian Punch® – all
- Hire's® Root Beer
- Kool-Aid® drink mixes
- Mountain Dew® Code Red & Amp
- Mr. Pibb®
- Pepsi® – all varieties
- Northern Neck® Ginger Ale
- Propel® – all flavors
- RC Cola® – all flavors
- Slice® Cola & Cherry
- SoBe Lifewater® – all flavors
- Some calcium-fortified juices
- Sunny Delight® – all flavors
- Tang®
- Tropicana® Fruit Drinks – canned

Enhanced Meats

Enhanced meats are fresh or frozen meats that have been injected with large amounts of salt and phosphate solutions to keep them moist, tender and full of flavor. Fast food and convenience foods are also enhanced. The only way to know if meats are enhanced is to read the ingredients and small print for the terms "enhanced or phosphate" such as:

sodium hexametaphosphate • sodium tripolyphosphate • tetrasodium pyrophosphate
sodium acid pyrophosphate (SAPP) • pentasodium triphosphate

Limit or avoid foods that contain these additives.

Common Foods May Contain Hidden Phosphorus, cont.

Recommended Cereal Choices (<50 mg phosphorus per serving)

Hot Cereals (not instant) (1/2 cup serving)
Corn Grits
Cream of Rice®
Cream of Wheat®
Farina
Malt-o-Meal®

Ready to Eat Cereals (3/4 cup serving)

Alpha-Bits®, Post
Apple Jacks®, Kellogg
Apple Zaps®, Quaker
Apple Zings®, Malt-O-Meal
Berry Berry Kix®, General Mills
BooBerry®, General Mills
Captain Crunch®, Quaker
Captain Crunch with Crunchberries®, Quaker
Cinnamon Crunch Crispix®, Kellogg
Cinnamon Mini-Buns®, Kellogg
Cinnamon Toast Crunch®, General Mills
Cookie Crisp®, General Mills
Corn Chex®, General Mills
Corn Flakes, all varieties
Corn Pops®, Kellogg
Crispix®, Kellogg
Crispy Rice®, Malt-O-Meal
Crunchy Corn Bran®, Quaker
Frankenberry®, General Mills
Froot Loops®, Kellogg
Frosted Chex®, General Mills
Frosted Flakes®, Kellogg
Fruity Bronto Blasts®, Quaker
Fruity Pebbles®, Post
Golden Krisp®, Post
Golden Grahams®, General Mills
Golden Puffs®, Malt-O-Meal
Honey Buzzers®, Malt-O-Meal
Honeycomb®, Post
Honey Crisp Corn Flakes®, Quaker
Honey Dipps®, Quaker
Honey Graham Ohs! ®,Quaker
Honey Nut Chex®, General Mills
Honey Smacks®, Kellogg
Kaboom®, General Mills
King Vitamin®, Quaker
Kix®, General Mills
Lucky Charms®
Product 19®, Kellogg
Puffed Rice, all varieties (1 ½ cups)
Quisp®, Quaker
Rice Chex®, General Mills
Rice Crisps®, Quaker
Rice Krispies®, Kellogg
Rice Krispies Treats Cereal®, Kellogg
Smacks®, Kellogg
S'mores Grahams®, General Mills
Sweet Crunch®, Quaker
Sweet Puffs®, Quaker
Tootie Fruities®, Malt-O-Meal
Trix®, General Mills

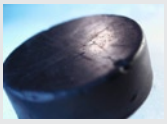
Persons with Diabetes: Some of these cereals contain more sugar than those routinely used in diabetic meal plans. Therefore, check the nutrition label before using them in your diet.

Know Your Serving Sizes

Measuring food portions is a good way to know how much you are eating. There are some hints to help give a good guess as to the proper serving size when measuring cups are not around.

The Comparison Method

One way to determine how much you're eating is to compare a serving size with a familiar object.
Here are some hints...

1 ounce cheese (*limit, high phosphorus)	a pair of dice	
1 medium potato (*limit, high potassium)	a computer mouse	
½ cup serving grapes	a light bulb	
1 serving whole fruit	a baseball (not a softball – which is larger than a baseball)	
1 serving pasta (1/3 cup)	a hockey puck	
3 ounces meat	a deck of cards	

Diabetes: Carbohydrates and Meal Planning

How Many Carbohydrate Choices Should I Eat at Each Meal?

In general, the following table gives examples of the approximate number of carbohydrate (carb) choices that should be eaten at each meal based on how many calories you may need each day. Ask your healthcare professional if snacks are part of your meal plan.

The amount of food you eat at a meal or snack may need to vary with factors such as expected exercise, insulin dose, and blood sugar level. You may need more food before you exercise. However, you should try to keep your eating pattern the same as much as possible.

15 grams of carb = 1 carb choice

	1200 calories	1500 calories	1800 calories	2000 calories	2200 calories
Breakfast carb choices	3	3	4	4	5
Lunch carb choices	3	4	5	5	6
Dinner carb choices	3	5	4	6	6
Snack carb choices	1	1	1	1	1
Approximate total carb (45-55% of total calories)	135-165	170-205	200-245	225-275	250-300

Meal Ideas for Diabetes and Dialysis

Breakfast: -2 scrambled eggs -½ cup apple juice (15 g) -1 slice white toast (15 g) -1 tsp butter -1 cup cooked oatmeal (30 g) **=60 gm carbohydrate**	**Breakfast:** -½ cup cranberry juice (15 g) -2 hard boiled eggs -1 English muffin (30 g) -1 tsp butter **=45gm carbohydrate**	**Breakfast:** -½ cup rice milk (15 g) -1 cup puffed rice cereal (15 g) -1 cup hot tea w/ lemon -1 small apple (15 g) **=45 gm carbohydrate**
Lunch: -3 oz turkey on 2 slices of white bread (30 g) -½ cup of grapes (15g) -Lettuce salad w/ dressing -2 small cookies (3 inches across) (15 g) -1 cup water **=60 gm carbohydrate**	**Lunch:** -3 oz baked lemon pepper chicken breast -1 small white roll (15 g) with 1 tsp butter -1 cup cooked white rice (45 g) - ½ cup green beans - ½ cup canned pears in own juice (15 g) - 1 cup water **= 75 gm carbohydrate**	**Lunch:** -1 cup tuna salad on 1 cup of lettuce -5 crackers (15 g) -1 small apple (15 g) -Small slice of angel food cake (1/12th of a cake, 2 oz) (30 g) w/ ½ cup fresh strawberries (15 g) -1 cup water **=75 gm carbohydrate**
Dinner: -1 cup cubed steak and pepper stir fry -⅔ cup cooked rice (30 g) -1 small white roll w/ 1 tsp butter (15 g) -½ cup broccoli -½ cup canned peaches in own juice (15g) -1 cup water **=60 gm carbohydrate**	**Dinner:** -3-6 oz salmon -1 cup cooked buttered noodles (45 g) -½ cup mixed vegetables -1 small slice (2 inch square) of yellow cake w/ frosting (30 g) -1 cup water **=75 gm carbohydrate**	**Dinner:** -3-6 oz pork chop -1 small baked apple with cinnamon (15 g) -1 small white dinner roll (15 g) with 1 tsp butter -½ cup corn (15 g) -½ cup grapes (15 g) -1 cup water **=60 gm carbohydrate**

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1800 - 2000 Calorie Meal Planning for Dialysis

Breakfast:

2 Meat Servings: (choose 2 from the list below)
Examples:
1 low sodium sausage patty (1 ounce)
1 egg (scrambled, fried, over hard, boiled)
½ cup cottage cheese
1 ounce any piece of meat (beef, pork, chicken, fish, turkey, low salt ham)

1 Lower Potassium Fruit-
Examples: ½ cup grapes, 1 small apple, ½ cup applesauce, ½ cup canned peaches or pears in their own juice, ½ cup strawberries, ½ cup pineapple, ½ cup apple, grape or cranberry juice, etc.

1 Lower Potassium Vegetable- (in eggs or omelette) - ½ cup cooked or 1 cup raw
Examples: bell pepper, carrots, cucumber, onions

3 Servings from the Bread, Grains, Cereals Group: (choose 3 from the list below)
Cooked white rice/pasta-⅓ cup
Cooked cream of wheat (not instant), grits, or oatmeal - ½ cup
Dry puffed wheat or rice cereals - 1 cup
English muffin – ½
Other kidney friendly cereals, 15 gm carb serving
Remember: use only ½ cup milk per day!

Lunch:

2 Meat Servings: (choose 2 from the list below)
Examples: Any piece of meat (1 ounce beef, pork, chicken, fish, turkey)
1-2 sausage patties (1 ounce)
1 egg (scrambled, fried, over hard, boiled)
1 meat (1 oz lunch meat, ¼ cup tuna salad, egg salad, or chicken salad)

1 Lower Potassium Fruit- Examples: ½ cup grapes, 1 small apple, ½ cup applesauce, ½ cup canned peaches or pears in their own juice, ½ cup strawberries, ½ cup pineapple, ½ cup apple, grape or cranberry juice, etc.

1 Lower Potassium Vegetable- ½ cup cooked or 1 cup raw
Examples: celery, cucumber, lettuce salad, asparagus, green beans, carrots, snow peas, or cooked cauliflower

1800 - 2000 Calorie Meal Planning for Dialysis, cont.

Lunch (cont.):

3-5 Servings from the Bread, Grains, Cereals, Starchy Vegetables Group: (choose 3-5 from the list below)
White rice, cooked-⅓ cup
Spaghetti or any other type of pasta, cooked- ⅓ cup
1 slice white bread
1 small dinner roll
½ hamburger or hot dog bun
1 flour or corn tortilla, 6 inches across
Mixed vegetables with corn, peas or pasta -1 cup

Dinner:

4 Meat servings: (choose 4 from the list below)
Examples: Any piece of meat (1 ounce beef, pork, chicken, fish, turkey)
1 egg (scrambled, fried, over hard, boiled)
1 meat (1 oz lunch meat, ¼ cup tuna salad, egg salad, or chicken salad)

1 Low Potassium Fruit-
Examples: ½ cup grapes, 1 small apple, ½ cup applesauce, ½ cup canned peaches or pears in their own juice, ½ cup strawberries, ½ cup pineapple, ½ cup apple, grape or cranberry juice, etc.

1 Lower Potassium Vegetable- ½ cup cooked or 1 cup raw
Examples: celery, cucumber, lettuce salad, asparagus, green beans, carrots, snow peas, or cooked cauliflower

3-5 Servings from the Bread, Grains, Cereals, Starchy Vegetables Group: (choose 3-5 from the list below)
White rice, cooked-⅓ cup
Spaghetti or any other type of pasta, cooked- ⅓ cup
1 slice white bread
1 small dinner roll
½ hamburger or hot dog bun
1 flour or corn tortilla, 6 inches across
Mixed vegetables with corn, peas or pasta -1 cup

Snack:

If snacks are approved by your healthcare team, choose 1 carbohydrate serving per snack. Consider adding meat or protein to your snack(s). Examples include: tuna or chicken salad on 5 crackers, ½ sandwich with meat, or a hardboiled egg with 1 slice of toast.

Remember to take Phosphorus binders (such as PhosLo™, Renvela™, or Fosrenol™) as directed by your dialysis team!!

Dialysis & Diabetes Friendly Snacks

Ask your dietitian if you should take phosphorus binder(s) (such as PhosLo™, Renvela™, or Fosrenol™) with snacks.

Carbohydrate Free Choices

Vegetables

½ cup asparagus, celery, radishes, or green beans or 1 cup cucumber

Miscellaneous

½-1 cup sugar free gelatin (counts as fluid)

Proteins

1 hard-boiled or deviled egg
2 chicken wings (no sauce)
1 small meatball (no sauce)
¼ cup tuna, egg or chicken salad

Carbohydrate Snacks – 1 portion equals ~ 15 grams of carbohydrate

Fruits

- 1 small fresh apple, plum or pear
- ¾ cup fresh blueberries, pineapple, or 1 cup raspberries
- ½ cup canned lite pears, peaches, pineapple, or fruit cocktail
- ½ cup fresh or frozen grapes
- ½ cup unsweetened applesauce

Sweets

- 1.5 oz pound cake
- Cookies: butter (3 small), gingersnaps (3 small), 2 ladyfingers, molasses or raisin (1 small), shortbread (2 small), snicker doodle (1), sugar (2)
- 7-8 Nilla® wafers
- 1 (3"x 3") Rice Krispie bar®, homemade
- 8 small sugar wafers
- 1 oz Teddy Grahams®

***Beverages & Frozen Treats**

*Be sure to count these toward your fluids

- ½ cup lite apple juice or 1 cup grape or cranberry juice
- ¼ cup sherbet or sorbet
- 2 oz fruit ice or popsicle
- ½ cup rice milk, unfortified
- 4 oz diet lemon-lime, ginger ale, or root beer soda

Miscellaneous

- 1 oz animal crackers
- 2 bread sticks, plain
- 1 slice bread, white
- ½ small bun, white
- ¾ cup rice or corn cereals, unsweetened
- 5 crackers with unsalted tops
- 3 graham cracker squares
- 4 melba toast
- 2 ½ cups popcorn, unsalted
- 3 pretzel twists, unsalted
- 2 rice cakes, all kinds
- ½ cup snack mix, homemade, low salt
- Sugar-free chewing gum or hard candy
- ½ toasted bagel (plain, egg, cinnamon, or raisin), ½ English muffin, or 1 slice bread with margarine, sugar-free jam, cream cheese, or garlic
- ½ oz tortilla chips, unsalted
- ¼ cup egg or chicken salad on 1 slice bread or 5 crackers
- 1 oz Wheat Thins®

Dialysis Friendly Snacks

Ask your dietitian if you should take a phosphorus binder (such as PhosLo™, Renvela™, or Fosrenol™) with snacks.

Fruits & Vegetables

- 1 small fresh apple, plum or pear
- 1 cup fresh blueberries, pineapple, or raspberries
- ½ cup canned peaches, pineapple, or fruit cocktail or 1 cup pears
- ½ cup fresh or frozen grapes
- 1 cup applesauce
- ½ cup fresh asparagus, celery, green beans, & radishes or 1 cup cucumber

Proteins

- 1 hard-boiled or deviled egg
- 2 chicken wings, no sauce
- 1 small meatball, no sauce
- ¼ cup tuna, egg or chicken salad
- 1 slice french toast with syrup

Sweets

- 1 oz. pound cake or sponge cake
- Candy: peppermints, cinnamon, sours, gummies, soft mints, marshmallows, jelly beans, etc.
- 1-2 small cookies: butter, gingersnaps, ladyfingers, molasses, raisin, shortbread, snicker doodle, sugar
- 2 Fig Newtons®
- 12 Nilla® wafers
- 1 Nutri-Grain® bar, mixed berry
- 1 small cake donut, plain or glazed
- 1 Pop-Tart® (grape, apple, wild berry)
- Rice with cinnamon and sugar
- 1 Rice Krispies Treat®
- 8 small sugar wafers
- 1 oz. Teddy Grahams®

*Beverages & Frozen Treats

(*Be sure to count these toward your fluids.)

- Grape or cranberry juice
- Gelatin
- Sherbet or sorbet
- Fruit ice or popsicles
- Rice milk, unfortified
- Soda: lemon-lime, ginger ale, or root beer

Miscellaneous

- 1 oz. Animal crackers
- 3 bread sticks, plain
- 1 slice bread, white
- ½ bun, white
- ¾ cup cereals, rice or corn varieties
- 5 crackers, unsalted tops
- 4 squares graham crackers
- 4 melba toast
- ½ cup pasta salad
- 2 ½ cups popcorn, unsalted
- 10 pretzel twists, unsalted
- 2 rice cakes, any kind
- ½ cup snack mix, homemade
- Sugar-free chewing gum
- ½ toasted bagel (plain, egg, cinnamon, or raisin), ½ English muffin, or 1 slice bread with margarine, jam, cream cheese, honey, garlic, or cinnamon & sugar
- ½ oz tortilla chips, unsalted
- 16 Wheat Thins® crackers

Got Protein?

Eating enough protein is an important part of staying healthy for people on dialysis. Following the answers to these questions can help you to feel better and recover faster from sickness or infection.

Why do you need to eat protein?

Protein helps the body to fight infection and keeps you strong and healthy. With dialysis, some protein is lost with every treatment. Eating extra protein helps to replace the loss due to dialysis.

How do you know if you are eating enough protein?

Every month we measure a blood value called albumin, a protein in the blood.
If your albumin is greater than 4.0 then you are probably eating enough protein.

What can you eat to increase the amount of protein stored in your body?

Strive to eat more protein by including high protein foods at 2-3 meals each day. High protein foods include fresh meats, fish, seafood, and eggs. A nutrition supplement with extra protein is also an option to boost your protein storage.

Do you need to take your binders when you eat foods high in protein?

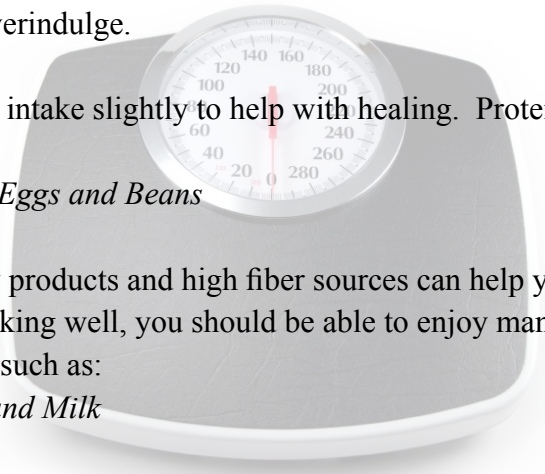
Yes, many foods high in protein are also sources of phosphorus.

Nutrition Following Kidney Transplant

Diet is important following a kidney transplant. If you have been on a strict diet due to kidney failure and needed dialysis, you will likely find that the post transplant diet is much easier to follow. You will be able to incorporate many of the foods you have been missing. Following surgery, there are several important nutritional goals that will enhance your healing and also lead to a "healthier" you.

1. <u>Achieve a healthy body weight.</u>

Following your transplant, you may notice an improved appetite. While it is important to meet your nutritional needs, it is also important to reach a healthy weight and not overindulge.



For two weeks after surgery, it is important to increase protein intake slightly to help with healing. Protein rich foods include:

- *Lean Meat, Poultry, Fish, Low-fat Milk, Yogurt, Cheese, Eggs and Beans*

Including fresh fruits and vegetables, lean meats, low fat dairy products and high fiber sources can help you meet your "healthy" weight goals. As long as your transplant is working well, you should be able to enjoy many of the previously limited high potassium and high phosphorus foods such as:

- *Orange Juice, Bananas, Tomatoes, Whole Grain Foods and Milk*

Exercise is also key in achieving a healthy weight. With your doctor's advice get started with an exercise program as soon as you are permitted.

2. <u>Maintain acceptable blood sugar levels.</u>

After surgery, it is important to aim for acceptable blood sugars levels. Normal ranges of blood sugar are from 70-120 mg/dL. If you have a history of diabetes, controlling your blood sugars will help with the healing process.

Examples of a serving size of foods with carbohydrates include:

- *1 slice of bread, 1 small apple, ⅓ cup cooked pasta, 1 cup milk and ½ cup potatoes*

3. <u>Aim for desired blood lipid levels</u>.

Following the transplant, fat levels in your blood should be controlled to decrease your risk of developing heart disease. Your doctor will check your blood lipid levels. A heart healthy diet is recommended after your kidney transplant.

Some diet suggestions for lowering fat and cholesterol include:

- Limiting alcoholic beverages.
- Reducing the amount of fat or oil you use. Pick healthier types like canola or olive oil.
- Selecting lean meats, poultry and fish.
- Choosing nonfat dairy products and salad dressings.
- Cook using low fat cooking methods like baking, broiling or steaming.
- Substituting high fat sweets with fruit or a low fat dessert.

Nutrition following Kidney Transplant, cont.

4. <u>Control blood pressure</u>.

After the transplant, it is still important to limit salt/sodium (~2000mg/day) because of possible fluid retention caused by transplant medications. Controlling the amount of salt/sodium in your diet is also important to promote a healthy blood pressure.

5. <u>Enhance optimal bone density</u>.

With a renal disease history, you may have experienced some bone loss depending upon how well your phosphorus and calcium levels were regulated. After surgery it is important to get enough calcium, vitamin D and magnesium to promote bone growth.

- Approximately *1500 mg/day of Calcium* is key.
  Sources: Low fat Milk, Cheese, Yogurt, Leafy Vegetables
- Recommended minimum of *vitamin D is 400-600 IU/day.*
  Sources: Fatty Fish (e.g. Salmon), Egg Yolk, Fortified Milk, Other Fortified Foods, and Supplements
- An *increase in magnesium* from diet.
  Sources: Green vegetables, Legumes, Nuts, Whole Grain Bread

6. <u>Minimize unwanted side effects.</u>

Immunosuppressive medications given to prevent rejection of your transplant will affect your diet. Common anti-rejection meds are:

1. Steroids (Prednisone)
2. Cyclosporine (Neoral)
3. Tacrolimus (Prograf)
4. Rapamune
5. Cellcept (Mycophenolate)

Side effects from these drugs may lead to an *increase* in:

- appetite
- blood lipid levels
- stomach ulcers
- blood pressure
- weight gain
- blood sugar levels
- fluid retention
- osteoporosis

A healthy diet and physical activity can help control these side effects. If you have any questions concerning a healthy heart diet after your kidney transplant, contact a Registered Dietitian for more detailed advice.

Acknowledgements and References

Botanical Medicines & CKD Patients
– Catherine M. Goeddeke-Merickel, MS, RD, LD, Clinical & Web site Consultant/Nephrology Specialist, Lincoln, NE

Why What You Eat Matters for CKD
– Mayo Clinic Dietetics Renal Subcommittee, Rochester, MN

Reference: www.kidney.org

Common Foods May Contain Hidden Phosphorus
- Mayo Clinic Dietetics Renal Subcommittee, Rochester, MN

References:

- Hidden Phosphorus in Popular Beverages, *NNJ*, July-Aug 2005, vol 32(4) and individual product web sites and labels.
- Hidden Phosphorus: A New Challenge for the Nephrology Dietitian. *Renal Nutrition Forum*. Summer 2008, vol 27(3).
- Hidden Phosphorus at Breakfast: Part 2. *JREN*. 15(3):E1-6, 2005. Murphy-Gutekunst, L. and USDA Nutrient Database (April-June 2009).

Know Your Serving Sizes, Diabetes: Carbohydrates & Meal Planning, Meal Ideas for Diabetes & Dialysis, and 1800-2000 Calorie Meals Planning for Dialysis
- Jennifer Monroe, RD, LDN, Renal Dietitian, FMC-West Suburban Dialysis Center, Oak Park, IL

References:

- Byham-Gray,L. Wiesen, K. A Clinical Guide to Nutrition Care in Kidney Disease.
- The USDA web site: www.usda.gov/wps/portal/!ut/p/_s.7_0_A/7_0_1OB?navtype=SU&navid=FOOD_NUTRITION
- The American Diabetes Web site: www.diabetes.org
- The American Dietetic Associations brochure: Basic Carbohydrate Counting

Dialysis & DM Friendly Snacks
- Mayo Clinic Dietetics Renal Subcommittee, Rochester, MN

Snack List Criteria: < 195 mg K per serving, < 200 mg sodium per serving, < 75 mg phosphorus per serving (except proteins = < 100 mg/serving), CHOs in 1 Diabetic exchange portion.

References: Nutritionist Pro software, Bowes & Church's Food Values and Portions Commonly Used (18th Ed.), and USDA Nutrient Database (http://www.nal.usda.gov/fnic/foodcomp/search/).

Dialysis Friendly Snacks
- Mayo Clinic Dietetics Renal Subcommittee, Rochester, MN

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Got Protein?
- Jessica L. Stauffer, MS, RD, LD, Renal Dietitian, DSI—Beeville Dialysis Clinic, Beeville, TX

Nutrition Following Kidney Transplant
– Stacey C. Phillips, RD, Clinical Dietitian, Saint Mary's Healthcare, Grand Rapids, MI

Reference: www.kidney.org

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