Nutrition in Chronic Renal failure
Practical Considerations

Eva E. Politzer
Nutrition in Chronic Renal Failure: Practical Considerations

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Disclosures

● Nutricia North America
  ■ Consultant

● Martek Biosciences
  ■ Consultant
Chronic Kidney Disease (CKD)

Definitions:

- Persistent kidney damage for > 3 mo’s associated with:
  - ↓ GFR
  - Renal biopsy
  - Markers of kidney damage

ASPEN Core Curriculum 2007
## Classification of CKD

<table>
<thead>
<tr>
<th>STAGE</th>
<th>DESCRIPTION</th>
<th>GFR mL/min/1.73m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kidney damage with normal or ↑ GFR</td>
<td>≥ 90</td>
</tr>
<tr>
<td>2</td>
<td>Kidney damage with mild ≤ in GFR</td>
<td>60-89</td>
</tr>
<tr>
<td>3</td>
<td>Moderate ↓ in GFR</td>
<td>30-59</td>
</tr>
<tr>
<td>4</td>
<td>Severe ↓ in GFR</td>
<td>15-29</td>
</tr>
<tr>
<td>5</td>
<td>Kidney failure</td>
<td>&lt; 15 (or dialysis)</td>
</tr>
</tbody>
</table>

NKF, K/DOQI Guidelines 2002
Prevalence of CKD in the U.S.

- 1 in 9 Americans or > 20 million
- Another 20 million at ↑’ed risk
- Estimate for year 2010
  - ~610,000 patients on dialysis with ESRD
- Diabetes & HTN account for 65-70% of all new cases of ESRD

ASPEN Core Curriculum 2007
Causes of CKD

- Diabetes Mellitus
- Hypertension
- Intrinsic Renal Disease
  - Glomerulonephritis
  - Vasculitis
- Urinary Tract Obstruction
  - Malformation
  - Tumors
- Vascular Disease
- Hemolytic Uremic Disease

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End Stage Renal Disease (ESRD) Network (www.esrdnetwork.org)

- Not for profit
- Advocates on behalf of membership
- Coordinates projects
- Forum
  - Supports ESRD Networks in promoting the quality of care to patients with kidney disease:
    - Education
    - Collection, analysis, dissemination of data & information
End Stage Renal Disease (ESRD) Network (www.esrdnetwork.org)
Southeastern Kidney Council
Quick Facts

Network 6: North Carolina (NC), South Carolina (SC), Georgia (GA)

People Served:

- As of 12/31/05: 332,866 people on dialysis in U.S.
- 31,539 (9.5%) are in Network 6 (largest!)
- Currently 66,837 people awaiting kidney transplant in U.S.
  - 16,476 received one in 2005
  - 1015 (6.2%) in Network 6
Southeastern Kidney Council
Quick Facts

Dialysis and Transplant Facilities:

- As of 12/31/05, there were 3634 dialysis centers and 206 transplant centers in the U.S.
- Currently, there are 463 dialysis centers and 10 transplant centers in Network 6
- As of 12/31/06, there were 246 dialysis centers and 13312 patients on dialysis in GA (primarily HD and in-center)

Source: SIMS, REMIS databases, and United Network for Organ Sharing (UNOS)
ESRD Network 6
Georgia, US-2006

3707 newly diagnosed patients:

50:50 male:female
2177 black or African American
1474 white
1624 diabetes
1240 hypertension
### Age Distribution of Newly Diagnosed Patients

<table>
<thead>
<tr>
<th>AGE</th>
<th>No.</th>
<th>AGE</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;19</td>
<td>43</td>
<td>60-64</td>
<td>466</td>
</tr>
<tr>
<td>20-29</td>
<td>63</td>
<td>65-69</td>
<td>394</td>
</tr>
<tr>
<td>30-39</td>
<td>274</td>
<td>70-79</td>
<td>695</td>
</tr>
<tr>
<td>40-49</td>
<td>509</td>
<td>80-84</td>
<td>233</td>
</tr>
<tr>
<td>50-54</td>
<td>397</td>
<td>≥85</td>
<td>0</td>
</tr>
<tr>
<td>55-59</td>
<td>455</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
## ESRD Network 6 (NC, SC, GA)

<table>
<thead>
<tr>
<th>Year</th>
<th>2005</th>
<th>2006</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Transplants Performed</strong></td>
<td>368</td>
<td>396</td>
</tr>
<tr>
<td>(75% cadaveric)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Patients Waiting for Transplant</strong></td>
<td>1407</td>
<td>1228</td>
</tr>
</tbody>
</table>
## Nutrient Requirements for Adults with ESRD/Hemodialysis

<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Energy</td>
<td>35 Kcal/Kg IBW</td>
</tr>
<tr>
<td>Protein</td>
<td>1.2 g/Kg IBW</td>
</tr>
<tr>
<td>Fluid</td>
<td>750-1000 mL/day + urine output</td>
</tr>
<tr>
<td>Sodium</td>
<td>2-3 g/day</td>
</tr>
<tr>
<td>Potassium</td>
<td>2-3 g/day or 40 mg/Kg IBW</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>0.8-1.2g/day or &lt;17 mg/Kg IBW</td>
</tr>
</tbody>
</table>

### Common Medications for Patients with ESRD

#### 1. Phosphate Binders

- Taken with meals and snacks to prevent dietary phosphorous absorption.

<table>
<thead>
<tr>
<th>Medication</th>
<th>Brand Names</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium carbonate</td>
<td>TUMS®, Os-Cal, Calc-Chew, Calci-Mix</td>
</tr>
<tr>
<td>Calcium acetate</td>
<td>PhosLo</td>
</tr>
<tr>
<td>Mg/Ca++ carbonate</td>
<td>MagneBind</td>
</tr>
<tr>
<td>Sevelamer hydrochloride</td>
<td>Renagel</td>
</tr>
<tr>
<td>Aluminum carbonate</td>
<td></td>
</tr>
<tr>
<td>Aluminum hydroxide</td>
<td>Alucap, Amphojel</td>
</tr>
</tbody>
</table>
2. Vitamins

- Increased need for water-soluble vitamins because of losses during dialysis
- Fat-soluble vitamins A, D, and K are not supplemented.
- Vitamin E may be supplemented.
- Dialysis Recommendations:
  - Vitamin C: 60 mg (not to exceed 200 mg daily)
  - Folic acid: 1 mg
  - Thiamin: 1.5 mg
  - Riboflavin: 1.7 mg
  - Niacin: 20 mg
  - Vitamin B<sub>6</sub>: 10 mg
  - Vitamin B<sub>12</sub>: 6 µg
  - Pantothenic acid: 10 mg
  - Biotin: 0.3 mg

- Brand names include Nephrocap, Neph-ron FA, Nephplex, Renal Caps, and Tabron.
3. Iron

- Iron needs are increased because of EPO therapy.

  **Oral iron**  
  Ferrous gluconate, ferrous sulphate, Niferex 150 (polysaccharide iron complex)

  **IV iron**  
  Infed (iron dextran), Ferrlecit (iron gluconate) Venofer (iron sucrose)

4. Erythropoietin

- Stimulates bone marrow to produce red blood cells.

  **IV or IM**  
  Epogen or EPO (epoetin)
5. Activated Vitamin D
- Used for the management of hyperparathyroidism.
  
  **Oral**  Rocaltrol (calcitriol), Hectorol (doxercalciferol)
  **IV**  Calcijex (calcitriol), Zemplar (paricalcitol)

6. Bisphosphonates
- Inhibit bone resorption by blocking osteoclasts.
  
  **Oral**  Fosamax (alendronate)
  **IV**  Aredia (pamidronate)
7. Calcium Supplements
   TUMS, Os-Cal, Calci-Chew

8. Phosphorous Supplements
   Kphos, NutraPhos, NutraPhos K

9. Heavy Metal Chelator
   - Binds aluminum and iron and is dialyzed off.
   - IV Desferal (deferoxamine or DFO)
10. Cation Exchange Resin

- For the treatment of hyperkalemia.

  *Oral or rectal* Kayexalate (sodium polystyrene sulfonate (SPS))

Wolf F, Montermeyer T 2003
Nutrition in CKF/Dialysis

*Primary day-to-day concerns:*
1. Albumin level (goal ≥3.8g/dL) → protein intake
2. Potassium and phosphorus intake/levels
3. Blood glucose control (if DM)
4. Weight

*What can be achieved: cost, compliance?*
Nutrition in CKF/Dialysis

SIMPLIFY!!!
PRCT over 14 mo’s
≥18yo
26 renal p.o. supplement; 1-2 (8oz.) cans/day
14 non-supplement; intensive dietary counseling (not controlled);
- goal 30-35 Kcal and 1.2 g Pro/Kg IBW
alb≤3.5 g/dL and MNA ≤ 23.5 for >3 mo’s
<table>
<thead>
<tr>
<th></th>
<th>Supplement</th>
<th>Counseling</th>
</tr>
</thead>
<tbody>
<tr>
<td>Avg. Kcal/day (baseline)</td>
<td>1252</td>
<td>1099</td>
</tr>
<tr>
<td>Avg. Pro g/Kg/day (baseline)</td>
<td>0.86</td>
<td>0.78</td>
</tr>
<tr>
<td>Mean difference in alb/month (adjusted)</td>
<td>-0.04*</td>
<td>0.06*</td>
</tr>
</tbody>
</table>

*p 0.03

Akpele L, Bailey JL 2004
Authors concluded counseling may be more effective.

However:
- Small sample size
- Change in albumin statistically significant
  BUT is it clinically relevant?
- Counseling AND supplements are likely most effective
American Kidney Foundation (AKF) Meeting, August 2007

- 52 health professionals were surveyed to determine usual practice and preferences regarding use of renal oral supplements
Attendees Surveyed by Profession

- **RD**: 39%
- **RN**: 24%
- **MSW**: 22%
- **PhD**: 2%
- **MD**: 2%
- **Other**: 11%

n = 52
Type of Practice Settings

- Dialysis Center: 70%
- Hospital: 20%
- Other: 10%

n = 52
Who Orders the Diet Prescription?

- RD: 56%
- MD: 41%
- RN: 3%

n = 52
Use of Oral Supplements

- Often: 35%
- Sometimes: 39%
- As much as possible: 22%
- Never: 4%

n = 51
### Most Important Characteristic of Oral Supplement

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Rank</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost</td>
<td>1</td>
</tr>
<tr>
<td>Taste</td>
<td>2</td>
</tr>
<tr>
<td>Protein Level</td>
<td>3</td>
</tr>
<tr>
<td>Mineral Level</td>
<td>4</td>
</tr>
<tr>
<td>Smell</td>
<td>5</td>
</tr>
<tr>
<td>Mouth Feel</td>
<td>6</td>
</tr>
</tbody>
</table>

1=most important
Reasonable Unit Price for a 4 oz. Renal Supplement

4 oz. Renal Supplement n=15

Reasonable Unit Price for a 4 oz. Serving

Less than $0.25: 1
$0.25 to $0.50: 3
$0.50 to $0.75: 2
$0.75 to $1.00: 5
$1.00 to $1.25: 0
$1.25 to $1.50: 2
$1.50 to $1.75: 0
$1.75 to $2.00: 1
$2.00 to $2.25: 1
$2.25 to $2.50: 0
$2.50 to $2.75: 0
More than $2.75: 2
8 oz. Renal Supplement n=23

Reasonable Unit Price for a 8 oz. Serving

- Less than $0.25: 0
- $0.25 to $0.50: 1
- $0.50 to $0.75: 1
- $0.75 to $1.00: 8
- $1.00 to $1.25: 2
- $1.25 to $1.50: 1
- $1.50 to $1.75: 1
- $1.75 to $2.00: 4
- $2.00 to $2.25: 0
- $2.25 to $2.50: 2
- $2.50 to $2.75: 1
- More than $2.75: 4

Less than $0.25
$0.25 to $0.50
$0.50 to $0.75
$0.75 to $1.00
$1.00 to $1.25
$1.25 to $1.50
$1.50 to $1.75
$1.75 to $2.00
$2.00 to $2.25
$2.25 to $2.50
$2.50 to $2.75
More than $2.75
Nutrition in CKF/Dialysis

SIMPLIFY!!!
### Food Choices for My Renal Diet

#### Dairy Products

<table>
<thead>
<tr>
<th>Dairy Products</th>
<th>1 serving = ½ cup, unless otherwise noted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk</td>
<td></td>
</tr>
<tr>
<td>Ice cream</td>
<td></td>
</tr>
<tr>
<td>Yogurt (plain, frozen, flavored)</td>
<td></td>
</tr>
<tr>
<td>Cottage cheese</td>
<td></td>
</tr>
<tr>
<td>Pudding</td>
<td></td>
</tr>
<tr>
<td>Sherbet</td>
<td></td>
</tr>
</tbody>
</table>

#### Fluids

<table>
<thead>
<tr>
<th>Fluids</th>
<th>cc = cups per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sodas (except cola &amp; pepper types)</td>
<td></td>
</tr>
<tr>
<td>Cream soda</td>
<td></td>
</tr>
<tr>
<td>Cranberry juice</td>
<td></td>
</tr>
<tr>
<td>Lemonade or Limeade</td>
<td></td>
</tr>
<tr>
<td>Fruit ice or sorbet (¼ cup)</td>
<td></td>
</tr>
<tr>
<td>Popsicle (3 oz. or 1 bar)</td>
<td></td>
</tr>
<tr>
<td>Coffee or tea (limit each to 1 cup per day)</td>
<td></td>
</tr>
<tr>
<td>Ice (1 cup = ¼ cup water)</td>
<td></td>
</tr>
<tr>
<td>Water</td>
<td></td>
</tr>
<tr>
<td>Root beer</td>
<td></td>
</tr>
<tr>
<td>Kool-Aid</td>
<td></td>
</tr>
<tr>
<td>Juice bar (3 oz.)</td>
<td></td>
</tr>
</tbody>
</table>

> Use sugar-free if diabetic.

#### Fats and Oils

<table>
<thead>
<tr>
<th>Fats and Oils</th>
<th>1 serving per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creamer, non-dairy (2 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Gravy, homemade (2 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Margarine (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Margarine, low-calorie (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Mayonnaise (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Mayonnaise, low-calorie (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Oil (olive, canola) (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Salad dressing, French or Italian (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Salad dressing, low-calorie (2 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Unsalted margarine or butter (1 tsp)</td>
<td></td>
</tr>
</tbody>
</table>

#### Saturated Fats

<table>
<thead>
<tr>
<th>Saturated Fats</th>
<th>Limit use of these</th>
</tr>
</thead>
<tbody>
<tr>
<td>Butter (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Shortening (1 tsp)</td>
<td></td>
</tr>
<tr>
<td>Cream cheese (1 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Sour cream (2 Tbsp)</td>
<td></td>
</tr>
</tbody>
</table>

#### Calorie Supplements

**For Non-Diabetics**

<table>
<thead>
<tr>
<th>Calorie Supplements</th>
<th>servings per day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chewy fruit snacks (1 pouch)</td>
<td></td>
</tr>
<tr>
<td>Cranberry sauce (¼ cup)</td>
<td></td>
</tr>
<tr>
<td>Fruit roll-ups (2)</td>
<td></td>
</tr>
<tr>
<td>Gumdrops (15 small)</td>
<td></td>
</tr>
<tr>
<td>Hard candy (4 pieces)</td>
<td></td>
</tr>
<tr>
<td>Jam, jelly, or honey (2 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Jelly beans (10)</td>
<td></td>
</tr>
<tr>
<td>Marshmallows (3 large)</td>
<td></td>
</tr>
<tr>
<td>Sugar or syrup (2 Tbsp)</td>
<td></td>
</tr>
<tr>
<td>Non-dairy whipped topping (¼ cup)</td>
<td></td>
</tr>
</tbody>
</table>

> Diabetics may eat diabetic hard candy.

#### Sample Menu

<table>
<thead>
<tr>
<th>Meal</th>
<th>Choice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breakfast</td>
<td></td>
</tr>
<tr>
<td>Snack</td>
<td></td>
</tr>
<tr>
<td>Lunch</td>
<td></td>
</tr>
<tr>
<td>Snack</td>
<td></td>
</tr>
<tr>
<td>Dinner</td>
<td></td>
</tr>
<tr>
<td>Snack</td>
<td></td>
</tr>
</tbody>
</table>
Food Choices for My Renal Diet

Meats

servings per day

1 serving = 1 oz. cooked, unless otherwise noted

- Egg (1) or egg substitute (½ cup)
- Cottage cheese (½ cup)
- Beef, lamb, veal, or fresh pork
- Poultry (chicken, turkey, Cornish hen)
- Fish (fresh or frozen)
- Tuna (¼ cup) (can be canned tuna under cold water for 1 minute to reduce the amount of salt)
- Shellfish (crab, lobster, shrimp)
- Wild game (venison, rabbit, squirrel, pheasant, duck, goose)

Starches

servings per day

One serving =

- Bread or roll (1)
- Bun, hamburger (½)
- Danish pastry (small)
- English muffin (½)
- Cereal, dry, without nuts or fruit (½ cup)
- Cereal, long cooking (½ cup)
- Doughnut (cake) (1)
- Crackers, unsalted (6)
- Graham crackers (3 squares)
- Popcorn, unsalted (1½ cups)
- Angel food cake (1/20 of cake)
- Vanilla wafers (10)
- Cake (2' x 2' square)
- Cookies (shortbread, sugar wafers) (4 small)
- Fruit pie (apple, berry, cherry) (1/8 pie)
- Corn, English peas (½ cup)
- Low sodium Town House crackers (8)
- Low sodium Wheat Thins (16)
- Bagel (½ small)
- Pasta (½ cup)
- Rice (½ cup)

- Count as 2 starchy if diabetic

Fruits

servings per day

Fresh (limit to 1 serving per day)

- Apple (1 small)
- Cherries (10)
- Lemon (1)
- Plum (1)
- Pineapple slice (2)
- Berries (½ cup)
- Grapes (16)
- Pear (1 small)
- Tangerine (1)
- Fig (1 medium)

Canned or Frozen (½ cup, drained)

- Applesauce
- Cherries
- Mandarin oranges
- Pears, plums
- Apricot
- Berries
- Fruit cocktail
- Peaches
- Pineapple
- Grapefruit (light syrup)

Juice or Fruit Drinks (½ cup)

- Apple juice
- Peach nectar
- Pineapple juice
- Grape juice
- Pear nectar

Vegetables

(low to moderate potassium)

servings per day

1 serving = ½ cup, unless otherwise noted

- Asparagus
- Beets
- Broccoli
- Cabbage
- Carrots
- Cauliflower
- Celery
- Cucumber
- Eggplant
- Green beans
- Radish
- Mushrooms
- Okra
- Onion
- Green pepper
- Zucchini
- Turnip root
- Summer squash
- Tomato (2 thin slices)
- Mustard greens (frozen or canned)
- Turnip greens (canned)

(moderate to high potassium)

Eat NO MORE than 2 times per week

1 serving = ½ cup, unless otherwise noted

- Dialyzed potatoes, sweet potato, winter squash
- Dialyzed greens (collard, spinach)
- Tomato based dishes (1/2 cup)
Fruits

_________ servings per day

Fresh (limit to 1 serving per day)

<table>
<thead>
<tr>
<th>Apple (1 small)</th>
<th>Berries (½ cup)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cherries (10)</td>
<td>Grapes (16)</td>
</tr>
<tr>
<td>Lemon (1)</td>
<td>Pear (1 small)</td>
</tr>
<tr>
<td>Plum (1)</td>
<td>Tangerine (1)</td>
</tr>
<tr>
<td>Pineapple slice (2)</td>
<td>Fig (1 medium)</td>
</tr>
</tbody>
</table>
Dialyzing Vegetables

Some vegetables have high sodium and/or potassium content, making them unsuitable for people on renal dialysis. By dialyzing these vegetables, the sodium and/or potassium content can be reduced. You should eat these vegetables as described.

Avoid these high potassium foods. The following is a list of foods that are high in potassium (greater than 140 mg per portion). Avoid foods listed below as much as you can.

FRUITS
- Apricots, raw
- Avocado
- Blackberries
- Blueberries
- Black currants
- Currants
- Dates
- Dried fruits
- Durian
- Figs, dried
- Grapefruit and grapefruit juice
- Guava
- Honeydew
- Jackfruit
- Kivi
- Mango
- Nectarine
- Cherries
- Oranges
- Pears
- Peaches
- Plums
- Prunes
- Raisins
- Strawberries
- Watermelon
- White grape juice
- White grapefruit
- Ripe banana
- Pineapple
- Locust bean
- Mulberry

VEGETABLES
- Asparagus (all species)
- Beet
- Cabbage
- Kale
- Collards
- Escarole
- Endives
- Swiss chard
- Corn
- Celery
- Cucumber
- Spinach
- Swiss chard
- Endives
- Spinach
- Peas
- Winter squash
- Artichokes
- Bamboo shoots
- Baked beans, refried beans
- Beans
- Brussels sprouts
- Butternut squash
- Chinese cabbage
- Green beans
- Lentils
- Kidney beans
- Navy beans
- Split peas
- White bean trimmings
- Tuna
- Salmon
- Sardines
- Shrimp
- Tofu
- Mushrooms
- Yeast
- Yeast extracts
- Yeast, brewer
- Yeast, malt
- Yeast, sake
- Yeast, dried
- Yeast, brewer
- Yeast, malt
- Yeast, sake
A Guide to 3 Ounce Servings

**York Chop (lean only)**
One chop this size: 272 calories

**Ground Beef Patty (85% lean)**
One patty this size: 204 calories

---

Protein and Portion Sizes

As a person with renal disease, you need protein to keep our bodies strong and healthy. As a result, your protein needs are higher because each time you dialyze you lose protein in your diet must be enough to replace those losses. You will also need more protein if you have anemia. Most dialysis patients need to eat about 6-8 oz (meat, poultry, fish, eggs) a day.

Rules of Thumb
Nutritional Supplements

At times when you are not getting adequate nutrition, different supplements may be used to increase protein and/or calories in your diet. Since many supplemental products contain high amounts of phosphorus and potassium, ask your dietitian which product is right for you.

Protein supplement drinks:
- Generally have more calories compared to powders
- Provide additional fluid (4-8 oz)
- May need to be ordered over the phone
- More convenient to use – no preparation is necessary

Protein Powders:
- Are available in different flavors as well as unflavored
- May change the texture or color of your food/beverage
- Are very compact so they do not increase the volume of your food
- Do not add any extra fluid

Tips for Protein Powders:
- Before adding to foods, mix powder with a small amount of water to make a smooth paste. This will prevent clumping.
- Gradually stir into foods with a texture, like pudding, hot cereal, applesauce or casserole dishes.
- You can add protein powder to your coffee in place of a creamer.
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Friday, July 20, 2007

Reading Food Labels

This handout is about the food label. It gives suggestions for renal patients on what to look for on a label to help keep their labs in range.

Posted by NATALIA at 4:12 PM 0 comments

Wednesday, July 18, 2007

HD DIET BASICS

This packet is a renal diet overview. It has recently been modified. Food Labels topic is added and Calcium. It is stored in Handouts under RENAL DIET subheading.

Posted by NATALIA at 4:29 PM 0 comments

Sunday, April 22, 2007

http://www.datashandouts.blogspot.com/
RENAL DIET CORNER

HEMO AND PD HANDOUTS

Friday, July 20, 2007

Reading Food Labels

About Me
The prevalence of CKD/dialysis is a large problem in the U.S and the incidence is continuing to grow.

Patients on dialysis present many challenges for nutrition practitioners.

On-going monitoring and counseling are necessary with the use of simple and clear educational materials/resources.

Oral renal supplements can be an important adjunct to improve nutritional status.
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