Focus on Proteinuria in CKD: Dietitian’s Perspective
Yvonne Mcintosh, RD
Proteinuria: RD Perspective

Nutrition Factors:
- Sodium
- Protein
- Glycemic control/Weight loss?

What dietary advice do we give our patients?

Translating guidelines into real life/ practical food & meals ideas.
Sodium/Salt

<2g/day sodium

↑ Na Diet: ↑ BP, albuminuria, induces hyperfiltration of kidney, blunts response of anti-HTN meds used to protect the kidneys (ACE/ARB’s).

↓ Na Diet: reduces BP, lowers albuminuria, minimizes edema

Na Restriction: Significant reduction in proteinuria by 19% (Swift, 2005).

More effective than dual ACE + ARB treatment for reduction of proteinuria and BP in non-diabetic nephropathy. (Slagman, 2011)
But... 

“My salt is fine – the doctor/nurse said my blood sodium was normal.”

“I don’t use salt, we don’t even have a salt shaker in the house.”
Most Sodium Comes from Processed and Restaurant Foods

- Processed and restaurant foods: 77%
- Naturally occurring: 12%
- While eating: 6%
- Home cooking: 5%
But... 

“I don’t use salt – I use Kosher salt, sea salt, ...”

“It doesn’t taste salty”

“Everything has salt – I can’t eat anything if you tell me not to eat salt.”
Salt

It's not the Salt Shaker... It's not just Fast Food...
Small changes add up!

Ham
800mg Na

→

Tuna
100mg Na
### Nutrition Facts

Serving Size 1 can (163 mL)
Servings per Container 3.5

<table>
<thead>
<tr>
<th>Amount per serving</th>
<th>Calories 30</th>
<th>Calories from Fat 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Fat 0g</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Saturated Fat 0g</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Cholesterol 0mg</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Sodium 520mg</td>
<td>22%</td>
<td>0%</td>
</tr>
<tr>
<td>Total Carbohydrate 6g</td>
<td>2%</td>
<td>0%</td>
</tr>
<tr>
<td>Dietary Fiber 1g</td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Sugars 5g</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Protein 1g</td>
<td>4%</td>
<td>0%</td>
</tr>
</tbody>
</table>

---

**All-Day Breakfast**

**Skillets**
- **Bacon, Egg & Cheese Skillet** 10.00
  - Bacon and Egg Topped with Cheese on a Toasted English Muffin

**Omelettes**
- **Egg & Cheese Omelette** 7.00
  - Egg & Cheese on a Toasted English Muffin

**On the side**
- **Bagel** 2.00
  - Sliced Bagel with Cream Cheese

% Daily Value (DV)
5% DV or less is a little,
15% DV or more is a lot.
Fresh is Best!
“The importance of salt intake in the general management of CKD patients cannot be overemphasized” (KDIGO 2012)
Protein

0.8g/kg/day
Avoid high protein intake >1.3g/kg/day

RDA = 0.8g/kg/day for general population

Appears to be no advantage to going < than 0.8g/kg/day. Risk of malnutrition-correlated morbidity & mortality.

KDIGO 2012 CPG for the Evaluation and Management of CKD.
Protein

Excess protein:
- ↑uremic toxins (suppress appetite & stimulate muscle protein wasting)
- urinary stone formation
- contributes to ↑K/P04

Insufficient protein:
- loss of lean body mass
- malnutrition
Protein

Not too high, not too low...

- 0.8g - 1.0 g/kg shows improvement in proteinuria (Chauveau 2007, Franz, 2006)

- 0.8g/kg show improvement by 17%, ACE 19%, diet + ACE 63% (Gansevoort, 1995)

- High protein diet (1.6g/kg) found to increase proteinuria in nephrotic patients. (Kaysen, 1985)

- Do not put patients on high protein diet for low albumin. Aim for 0.8g -1.0g/kg
Protein

0.8g/kg BW x 50-70%HBV
7g protein/oz = _______oz /day

HBV= High biological value
-meat, fish, poultry, dairy, legumes
-Does not include small amounts of protein in grains, fruit/veg.

5-7oz/day appropriate for most people
But....

“What is a Protein food?”
- Beef, poultry, fish
- Milk and dairy
- Eggs
- Beans, lentils, soy
- Peanut butter

“What is an ounce?”
1 oz = ~30g = thumb
3oz = deck of cards
“What type of Protein is best for my kidneys?”

Quality fresh, unprocessed, avoid additives (Na, K, P04)
“What type of Protein is best for my kidneys?”

In General, aim for:
- Fish 2-3x/wk
- Beef less often than chicken, turkey, or pork
- Nuts, Legumes & Soy as Potassium allows

Vegetarian protein may be beneficial compared to animal protein (esp. red meat)
- GFR, renal plasma flow, albumin excretion, lipid metabolism acid-base balance, BP control
- Caution with high K & processed veg. choices (ie. Veggie hotdogs)

“But I will be hungry on that amount of protein!”

- Ensure adequate:
  - Calories to meet needs
  - Carbs to ensure optimal utilization of protein
  - Healthy fats
  - Fibre – fruit, vegetables, grains (lowK/P04)

- Distribute protein throughout the day
True or False?

A high protein diet is NOT recommended for low albumin in Nephrotic syndrome.

A high protein diet can increase blood potassium.

3oz = a deck of cards

A moderate reduction in dietary protein can improve proteinuria.
Glycemic Control

Target HBA1c ~ 7.0%

• Consider:
  – Consistency of meal patterns
  – Balanced meals – CHO, protein & fat
  – Carb portions
  – Fibre
  – Glycemic Index
  – Carb Counting
  – *Wt loss*

KDIGO 2012 CPG for CKD.
In Summary

Nutrition Factors in Proteinuria:
  - Sodium – 2g/day
  - Protein – 0.8-1.3g/kg/day
  - Glycemic control

Always considering:
  - Potassium & phosphorus
  - The individual patient – age, QOL, cultural foods, food security, nutrition status, etc...
EAT 3 BALANCED MEALS EVERY DAY
Each sample meal includes a balance of grains, protein, vegetables and fruits.
Include snacks, water and other fluids to complete your day.

<table>
<thead>
<tr>
<th></th>
<th>BREAKFAST</th>
<th>LUNCH</th>
<th>DINNER</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><img src="image1" alt="Breakfast Image" /></td>
<td><img src="image2" alt="Lunch Image" /></td>
<td><img src="image3" alt="Dinner Image" /></td>
</tr>
<tr>
<td></td>
<td>Peanut butter sandwich</td>
<td>Whole grain sandwich</td>
<td>Grilled salmon</td>
</tr>
<tr>
<td></td>
<td>Granola bowl with strawberries</td>
<td>Salad</td>
<td>Mixed vegetables plate</td>
</tr>
<tr>
<td></td>
<td>Oatmeal with strawberries</td>
<td>Apple</td>
<td>Steamed rice</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNACKS</td>
<td><img src="image4" alt="Snacks Image" /></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Peach</td>
<td>Yogurt</td>
<td>Crackers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>