



2015

A BRAZIL NUT A DAY
Keeps the Dietitian away!

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PALEO

Nutrition in the News

GMO

Vegetarian

Weight watchers

Gluten free

DETOX

High Fiber

Low carbohydrate



Nephro-protection

*"To delay progression
of kidney disease"*

Acidosis is BAD



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- Common complication of CKD
- Leads to CKD progression
- Sodium bicarbonate supplements may reduce CKD progression

Role of dietitian?



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Base producing:

- Apples
- Apricots
- Oranges
- Peaches
- Pears
- Raisins
- Strawberries
- Carrots
- Cauliflower
- Eggplant
- Lettuce
- Potatoes
- Spinach
- Tomato
- Zucchini

Phosphorus

- Phosphorus retention begins early in CKD
- Risk factor for morbidity and mortality in both patients on dialysis and with CKD
- Found in both organic and inorganic forms.

Reducing phosphorus content

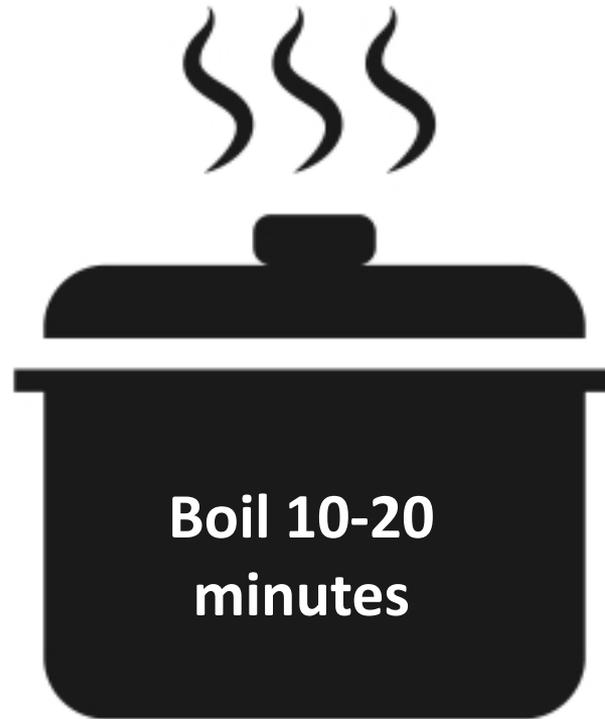
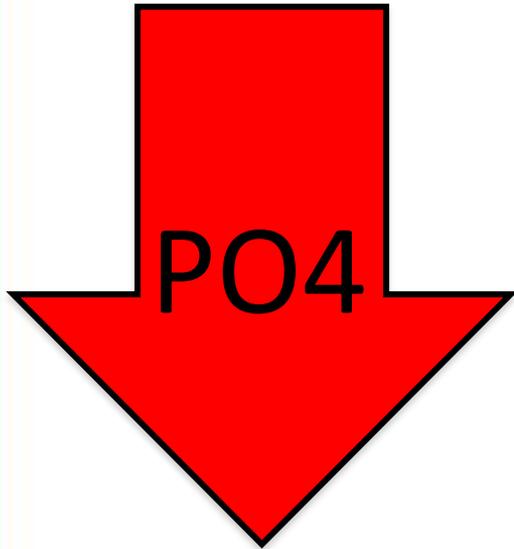


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Sodium



AGE (**A**dvanced **G**lycolation **E**nd Products)

Kidneys help maintain AGE homeostasis

Studies suggest that an AGE-restricted diet reduces inflammation

Limiting AGE formation may slow progression of disease

AGE's are
BAD



Marinades

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No amount of antioxidants can touch oxidative load of AGE.



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AGE

Comparison of AGE content (90 g hamburger)

| BOILED | MARINATED | BROWNE |
|---------|-----------|---------|
| 1400 kU | 3500 kU | 4900 kU |

Malnutrition Inflammation Complex Syndrome

Incidence of malnutrition:

- 20 – 25 % CKD
- more than 40% hemodialysis
- 18 – 50 % peritoneal dialysis

Causes of Wasting

- Loss of Appetite
- Diet Restrictions
- Nutrient Loss
- Hypercatabolism
- Inflammation

What's New?

- Appetite
- Anti-oxidants
- Fibre & Probiotics



Appetite

Brain problems

- leptins = satiety hormone
- ghrelin = hunger hormone

Gastric problems

- motility disorders
- delayed gastric emptying
- gastric distension

Oral problems

- taste changes
- dry mouth
- decayed or missing teeth



Are you bothered?



To what extent during the last 4 weeks were you bothered by the following?

Lack of appetite?

1.....2.....3.....4.....5

not
bothered

very
bothered

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Appetite

- 18% not bothered
- 53% somewhat bothered
- 20% moderately bothered
- 6 % very bothered
- 3 % extremely bothered

To eat or not to eat?



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- Loss of 1-3 kg LBM /year
- Missed meals
- Reduced energy

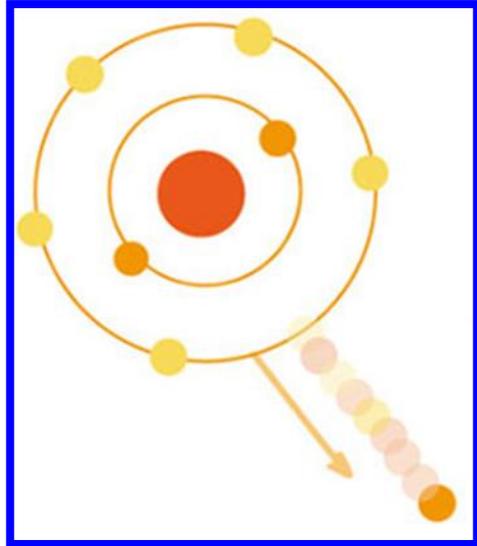
Supplements



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- 27 g soy or whey protein during dialysis
- Reduced inflammation
- improved gait speed.

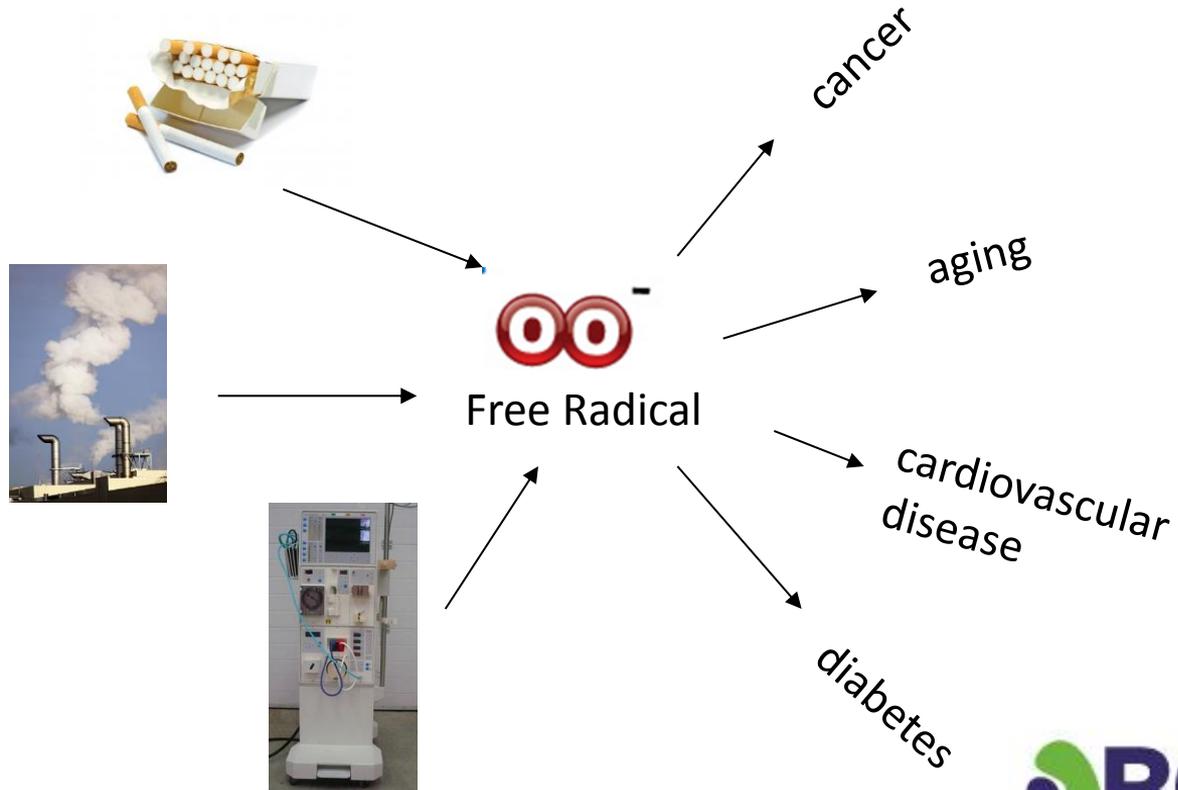
Oxidative Stress



Oxidative stress causes tissue damage and cardiovascular disease.

When a stable molecule loses an electron it becomes a free radical.

Oxidative Stress



Antioxidants

- Brazil Nuts

1 Brazil nut (5g) contains:
96 mcg Selenium
36 mg Phosphorus
34 mg Potassium



Brazil nuts

| Food per 100g | Selenium mcg | Phosphorus mg | Potassium mg |
|--------------------------|-----------------------------|---------------|--------------|
| Brazil nut raw (20 nuts) | Canada 1917 Brazil 5800* | 725 | 669 |
| Pork kidney braised | 311 | 240 | 143 |
| Turkey cooked | 31 | 250 | 300 |

Canadian Nutrient File August 2015

* Stockler-Pinto et al. Nutrition 26 (2010) 1065-1069

Antioxidants

- Pomegranate Juice



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Pomegranate juice

Nutrient breakdown per 100 mL

| | | | | |
|---|------------------------|--------------------------|-------------------------|-------------------------------|
|  | Energy kcal | Phosphorus mg | Potassium mg | Carbohydrate grams |
| | 58 | 12 | 225 | 14 |

Canadian Nutrient File August 2015

Fibre and Probiotics



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Reduced CVD risk and reduced inflammation are related to the interaction between dietary fibre and the gut microbiome.

Fibre goal is 20 – 35 g /day



½ cup asparagus(2)

½ cup corn(2)

½ cup green peas(4)

½ cup raspberries(4)

½ cup peach(2)

½ cup stewed rhubarb(6)

2 slices whole wheat bread(4)

→ **24 grams fibre**
1100 mg potassium

Bacteria in Balance



Commensals

- Inhibit pathogen growth
- Stimulate immune function
- Stimulate gut motility



Pathogens

- Sepsis, infection
- Inflammation
- Diarrhea, constipation

Pre-Biotics



Pro-Biotics



Is there anything left to eat?



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Potassium



Image by Master isolate image at FreeDigitalPhotos.net

Protein- A balancing act



image by Master isolate image at FreeDigitalPhotos.net

Protein

| Recommended protein for CKD: 0.8-1 g/kg 60-70 % high biological value | Recommended protein for dialysis: 1.2-1.4 g/kg 60-70 % high biological value |
|---|--|
| 56-70 g protein/day* | 84-98 g protein/day* |
| 6 oz HBV protein translates to: 4 oz meat 1 egg 1 cup milk | 9 oz HBV protein translates to: 6-7 oz meat 2 eggs ½ cup milk |

*Based on 70 kg person

Tailoring message



Thank you!

Life expectancy would grow by leaps and bounds
if green vegetables smelled as good as bacon!



image by Supertrooper at FreeDigitalPhotos.net



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