Nutrition for Seniors...
Why the fuss??
Agenda

- Under-nutrition in seniors
- Nutritional changes with ageing
- Good nutrition for seniors
- Phytonutrients/Probiotics
- Omega-3 fatty acids
- Whole grains
- Fiber
- Fruits & Vegetables
- Coffee/caffeine
- Common nutrition related medical concerns in seniors
Aging is not synonymous with poor health. Under-nutrition is pathological. Occurs when intake of dietary nutrients is less than adequate to maintain health.

- 5%-10% in community-dwellers (Sullivan, 2000).
- 85% for those in long-term care (Kayser-Jones, 2000).
- Up to 60% upon admission to acute care. Up to 60% become under-nourished during their hospital stay (Gary & Fleury, 2002).
Under-Nutrition in Seniors

- Under-Nutrition contributes to;
- Functional disability & longer hospital stays (Gary & Fleury, 2002).
- Physical complications (Sullivan, 2000).
- Increased admission to long-term care facilities (Huffman, 2002).
Under-Nutrition in Seniors;

- Related symptoms;
- Increased infection.
- Electrolyte imbalances.
- Anemia.
- Altered skin integrity.
- Generalized weakness.
- Fatigue.

(Burger et al, 2001)
Nutritional Changes & Seniors

- Increased nutrient needs with aging (B12, calcium, vitamin D).

- Canadian Community Health Survey (2004) shows majority of community dwelling seniors get <2 servings of dairy products daily.

- Calcium metabolism (↓ dietary calcium/vitamin D, ↓ exposure to sunlight, ↓ cutaneous production vitamin D3, ↓ renal production of 1,25(OH)2D3) and ↓ intestinal absorption of calcium → secondary hyperparathyroidism → accelerated bone loss.


- Sarcopenia - loss of muscle mass and function that comes with aging (exacerbated by weight loss).
Nutritional Changes & Seniors

- Gastric atrophy (↓ absorption of nutrients).
- ↓ transit time (constipation).
- Diminished taste/smell.
- Disease influenced by nutrition (diabetes, osteoporosis, HTN, obesity).
- Common nutritional disorders (anemia, protein deficiency).
- Unintentional weight loss (27% of frail elderly ages 65+) which increases mortality from 9-38%.
Tuft's University Food Pyramid for those >70

- Fats, Oils and Sweets: use Sparingly
- Calcium, Vitamin D, Vitamin B-12 Supplements
- Milk, Yogurt and Cheese Group: 3 Servings
- Meat, Poultry, Fish, Dry Beans and Nut Group: 2 Servings
- Vegetable Group: 3 Servings
- Fruit Group: 2 Servings
- Fortified-Cereal, Bread
- Rice and Pasta: 6 Servings
- Water: 8 Servings

- Malignancy (Alibhai, 2005)
- One or more chronic diseases i.e. COPD, heart disease, thyroid disease, GI disease, renal disease (Callen & Wells, 2003).
- Impaired dentition or dysphagia (Furman, 2006).
- Cognitive impairment → missed meals (Furman, 2006).
- Acute illness (Furman, 2006).
- Multiple medications (Chen et al, 2001).

- Decreased social contact & depression (Furman, 2006).
- Alcoholism (Alibhai, 2005).
- Functional disabilities (Chen et al, 2001).
- Unappealing taste or texture of food (Furman, 2006).
- Culturally unappealing food (Furman, 2006).
Under-Nutrition. Why worry?

- Consequences of Under-Nutrition in community-dwelling seniors;
  - ↑ Infection.
  - ↑ risk of falls.
  - ↓ functional status.
  - ↑ risk skin ulcers.
  - ↑ admission to acute care & long-term care facility.
  - ↑ mortality.
A Registered Dietitian (RD) is qualified to assess the degree of undernutrition in an older adult.

Various tools available; Mini Nutritional Assessment (MNA) tool (Stechmiller, 2003).

Subjective Global Assessment (SGA) tool (Persson et al, 2002).
Under-Nutrition

Despite our knowledge (prevalence, causes, risk facts etc.) and proper screening tools, it still occurs!

Of those admitted to residential care, 44% come from hospitals, 32% from private residences and 12% from other nursing homes (Gabrel, 1997).

As older adults move across the continuum of care, they are often admitted into facilities where under-nutrition is rampant.
What is Good Nutrition For Older Adults?

- 3 balanced meals and 2-3 snacks daily.
- 80:20 principle; 80% of the time choose nutrient dense foods...20% of the time, have fun!
- 8-10 cups hydrating fluid daily.
- Lots of green and orange fruit and vegetables, whole grains and low fat dairy. High biological value protein (i.e. lean meat).
- An over-all reduction in the sodium content of foods.
- A multivitamin containing synthetic vitamin D and B12.
- Calcium supplement if sufficient dairy not taken (4+ servings/day)
What is Good Nutrition For Seniors?

- Average energy intakes of institutionalized older adults are <1500 kcals/day (Lengyel, 2002).

- Canadian Community Health Survey;

- Adult females >65 years → ~1550 kcals.
  Adult males >65 years → ~1950 kcals.

- PROBLEM! ↑ nutrient needs with ageing, BUT, ↓ caloric intakes.

- SOLUTIONS???
What is Good Nutrition For the Seniors?

- Menus in retirement residences need to be planned to include foods that pack a lot of nutrients into small serving sizes.

- Think nutrient-dense foods, not empty calorie foods.

- Super-foods for Seniors!

- i.e. Foods containing probiotics, omega-3 fatty acids, phytonutrients, fiber and whole grains.
Phytonutrients

- **Phytochemicals** are plant-derived chemical compounds. "Phytonutrients" refer to phytochemicals or compounds that come from edible plants.

- Typically, the brighter the food, the more phytonutrients.
Phytonutrients

- Soy – protease inhibitors, phytic acid, isoflavones.
- Tomato – lycopene, beta carotene, vitamin C.
- Broccoli – vitamin C, sulphoraphane, lignans, selenium.
- Garlic – limonene, quercetin.
- Flax seeds and oil seeds – lignans.
- Citrus fruits – coumarin, cryptoxanthin, vitamin C, oxalic acid.
- Blueberries – tannic acid, lignans, anthocyanins.
- Sweet potatoes – beta carotene.
- Legumes – omega fatty acids, quercetin, lutein, lignans.
Probiotics

- Living organisms that may improve health of the host.
- Promote healthy bacterial balance in gut.
- Reduced risk, duration and frequency of diarrhea (Allen et al, 2006)
  - [www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD0048/frame.html](http://www.mrw.interscience.wiley.com/cochrane/clsysrev/articles/CD0048/frame.html)
- Must be taken long-term.
- May reduce antibiotic-related diarrhea.
- A daily dose of 1 to 10 billion bacteria units are needed. How can you get this????
Probiotics

- Bioactive yogurt! ACTIVIA®, Astro Biobest® or Yoptimal®.

- Other benefits;
  - Improved immune system.
  - Reduction in constipation.
  - Improved lactose intolerance.
  - Reduction in UTI’s.
  - Reduction in cholesterol.
  - May prevent diarrhea induced from medications i.e. proton pump inhibitors.
Omega-3 Fatty Acids

- A family of unsaturated fatty acids.
- The body cannot synthesize omega-3 fats and thus they must be derived from food.
- Foods containing Omega-3 fats include fatty fish (DHA/EPA), omega-pro eggs (DHA) & flax seed (ALA).
- Health benefits include:
  - Reduction in symptoms from rheumatoid arthritis (Fortin et al, 1995).
  - Positive effect on arrhythmias (Pignier et al, 2007).
  - Positive impact on alleviating depression (Su, 2003).
  - Reduction in triglycerides (McKenney, JM et al, 2007).
Whole Grains

- At least half of grain choices should be whole grains.

- Canadian Community Health Survey → 66% of community dwelling females and 43% males ages 71+ fail to meet recommendations for grains.

- Higher in fiber, magnesium, folic acid, vitamin E and phytonutrients.

- May help prevent diabetes, cancer, coronary heart disease, obesity and reduce blood pressure.

- Menu examples; whole wheat crackers w/ soup, 100% whole wheat bread, whole wheat pasta, bran muffins, brown rice, barley pilaf, high fiber cookies.
Fibre

- Older adults simply don’t get enough. Goals for women- 25 grams/day. For men- 30 grams/day.

- Found in bran layer of grains, fruit/vegetables, seeds, legumes and fibre supplements; i.e. Benefibre, Metamucil etc.

- Benefits;
  - May ↓ high cholesterol.
  - May prevent Diverticulosis/Diverticulitis.
  - May ↓ risk of colon cancer.
  - Fibre from flax seed may ↓ symptoms of IBS i.e. diarrhea & constipation (Tarpila et al, 2004 & Dahl et al, 2005).
  - May improve symptoms of Crohn’s/colitis.
Fibre

- Inulins → a group of oligosaccharides occurring naturally in many plants. Found in commercial breads & yogurts and naturally in onions, artichokes, bananas, asparagus, and garlic.

- As a prebiotic fermentable fiber, inulins increase absorption of calcium, magnesium and iron.

- Inulin promotes an increase in the mass and health of intestinal *Lactobacillus* and *Bifidobacterium* populations.

- Fiber menu examples; lentils, beans, fruit, flax seed, whole wheat bread, vegetables, oatmeal, high fiber cookies, whole grain muffins, brown rice, whole grain pasta.
Fruits & Vegetables

- 5+ servings per day are recommended.
- Aim for 2+ servings per meal.
- Dark orange, dark green, red/pink and allium family.
- Convincing evidence of protection for cancer of stomach, colorectal, breast, prostate (American Institute for Cancer Research).
- Source of fiber and water.
- Phytochemicals contained in fruit/vegetables confer disease-fighting benefits, e.g., lycopene in tomatoes and prostate cancer.
Fruit & Vegetables

- Buy local ($, support the local economy).
- Buy in season → more nutrients, cheaper.
- The brighter the better! Substitute lack-luster iceberg lettuce for dark green spring mix or spinach.
- Substitute yam and sweet potatoes for regular potatoes.
- Try cantaloupe, apricots, papaya or mango slices as a garnish and increase vitamin A!
- Serve sodium-reduced tomato juice a few days a week.
- Fruit bowl available to residents all day for snacks.
Coffee

- 1 cup of coffee = 130 mg caffeine.
- Caffeine intakes of 400 mg/day (3 cups coffee) are not associated with adverse health effects.
- No caffeine restriction for those with high blood pressure.
- Query decreased cognitive decline in older adults?
- Side effects of excess caffeine?? ↑ urination (incontinence), interferes with sleep, withdrawal symptoms, may impair glucose tolerance and insulin sensitivity.
Coffee Alternative- Green tea??

- 1 cup coffee = 130 mg caffeine.
- 1 cup green tea = 20 mg caffeine.
- Coffee has 6 times more caffeine!
- Green tea may protect against prostate, GI, breast and colorectal cancer and hypertension.
- Reduced risk of CAD and heart attack.
- 1 cup decaf coffee = 4 mg caffeine.
Diverticulosis

- Small, fluid-filled out-pouches in colon.
- Can become inflamed and bleed → pain.
- **NOT** a risk factor for colorectal cancer.

**Prevention:**
- A diet high in fiber may prevent diverticula from forming. (Aldoori et al, 1998).
- Rigorous activity may reduce risk.

Diverticulosis

- Avoidance of seeds and nuts was once thought necessary as it was though that they could lodge in the diverticula and cause inflammation.

- No research to support this claim (Stollman & Raskin, 1999). Avoidance of seeds, nuts, popcorn, etc. should be discouraged.


- When increasing fiber, increase fluids to 8-10 cups daily.
Constipation

- Intestinal transit. Normal = 3 days.
- Longer in women. ↑ with age.
- Affected by quality of the diet.
- Probiotics may increase transit time (Ouwehand et al, 2002).

Constipation

- Whole grains (Fiber).
- Promote hydration.
- Movement.
- Promote insoluble bran fibers and bulking agents. Examples; Fiber One® cereal, oats, flax seed, bran.
- Foods containing sorbitol or fructose (prune or pear juice).
- Menu examples; Add ground flax seeds to muffins and baked goods, serve high fiber cookies and muffins.
Putting It All Together

- Omega-3 enhanced eggs.
- Bioactive yogurt.
- Whole grains (rice, pasta, baked goods)
- Alternative beverages; green tea, tomato juice, yogurt-based smoothies.
- Dark green and orange fruits/vegetables.
- Serve fresh, seasonal berries for desserts.


