Vittles and Vitamins for the Vintage Adult

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Objectives

• Describe the association between nutrition and the common problems of the elderly
• Develop strategies to promote optimal nutrition for the elderly
• Identify current vitamin research and implications for the elderly
Common Problems

- Weight Loss
- Sarcopenia
- Constipation
- Osteoporosis
Usual Weight Trends in Aging

- Peak Weight at 75 years
- Gradual Weight Loss after age 75
Unintentional Weight Loss

- Weight loss >10% in 1-3 mon
- Decrease in functional ability
- Change in clothing fit
Impact of Weight Loss

- Most indicative screening parameter
- Greater significance
- Less reserve capacity
- Difficulty regaining weight
- Loss of functional ability
Cost Effective and Accessible

- Weight Loss History
- Dietary Intake Records
Strategies: Calories

- Determine cause(s) of the unintentional weight loss
- Consider:
  - Malignancy
  - Infection
  - Depression
  - Dementia
  - Exacerbation of chronic disease (i.e., COPD, CHF)
Strategies: Calories

- Avoid unnecessary dietary restrictions
- Encourage use of nutrient dense foods
- Use more frequent meals plus supplements or snacks
Strategies: Calories

Practical Suggestions

- Use foods that are well liked frequently
- Provide double portions of favorite foods
- Add calories by using sauces, gravies, toppings, and fats
- Emphasize calorie containing liquids to meet fluid needs
Sarcopenia

- Definition: the loss of skeletal muscle mass, strength, and quality
  - Sarco = flesh
  - Penia = loss or lack of
These cross sections of two women’s thighs may appear to be about the same size from the outside, but the 20-year-old woman’s thigh (left) is dense with muscle tissue. The 64-year-old woman’s thigh (right) has lost muscle and gained fat, changes that may be largely preventable with strength-building physical activities.
Protein

• Higher protein intake required to maintain nitrogen balance
• Contributors:
  – Lower energy intake
  – Impaired insulin action
  – Decreased efficiency of protein utilization

Strategies: Protein

- 1.0-1.25 gm/kg/day
- At least one high protein food at each of three meals
- Physical activity to maintain muscle mass
  - Exercise against resistance
Strategies: Protein

Practical Suggestions

• Add nonfat dried milk solids

• Add cheese, peanut butter, eggs and nuts (if dentition permits)

• Use commercial protein powders or supplements
CONSTIPATION

DEPRESSION

LOW BULK

FAD DIET

HARRIED LIFE STYLE

AGE

INACTIVITY

LAXATIVE

DOTY
Constipation

- One of most prevalent “perceived” problems in the elderly
- Bowel motility decreases with aging
- Dietary fiber is primary treatment: 
  \( \geq 25 \text{ grams per day} \)
# Robertson’s Rule of 2’s

<table>
<thead>
<tr>
<th>Food Item</th>
<th>Amount</th>
<th>Dietary Fiber</th>
</tr>
</thead>
<tbody>
<tr>
<td>100% Bran cereal or Miller’s Bran</td>
<td>1/2 cup or 2 Tablespoons</td>
<td>10-14 grams</td>
</tr>
<tr>
<td>Whole Wheat Bread</td>
<td>2 slices</td>
<td>4 grams</td>
</tr>
<tr>
<td>Fresh Fruit</td>
<td>2 pieces</td>
<td>4 grams</td>
</tr>
<tr>
<td>Vegetables</td>
<td>2 servings</td>
<td>4 grams</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td><strong>22-26 grams</strong></td>
</tr>
</tbody>
</table>
Strategies: Fluids

- Thirst sensation ↓ with aging
- Fluid requirements ↑ with ↑ fiber
- Encourage fluid intake
  - 8-10 cups per day
## Fluid: Nutrient Comparison

<table>
<thead>
<tr>
<th>Fluid</th>
<th>Free Water (cc)</th>
<th>Calories/Protein</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>240 cc (100%)</td>
<td>0/0</td>
</tr>
<tr>
<td>Juice (Apple)</td>
<td>210 cc (88%)</td>
<td>111/0</td>
</tr>
<tr>
<td>Whole Milk</td>
<td>214 cc (89%)</td>
<td>150/8</td>
</tr>
<tr>
<td>Instant Breakfast</td>
<td>217 cc (80%)</td>
<td>250/13</td>
</tr>
<tr>
<td>Fruit Beverage Supplement</td>
<td>191 cc (79%)</td>
<td>300/10</td>
</tr>
</tbody>
</table>
Osteoporosis

- High incidence of osteoporosis
  - 33% of women 60-70 years old
  - 66% of women ≥ 80 years old
- Less efficient absorption of calcium and Vitamin D
- Reduced conversion of inactive D to active D
- Reduced exposure to sun
Healthy vs. osteoporotic trabecular bone
Loss of Height

- Vertebral compression
- Serial measurement for loss of height may aid in identifying osteoporosis
Strategies: Calcium

• 1000-1500 mg/day
• At least one dairy product at each of three meals
• 800-1000 IU Vitamin D per day
• Use Vitamin D fortified foods
• Encourage sun exposure – 15-20 minutes per day
• Beneficial effect of weight bearing exercise
Calcium Supplements

• Administration: several times/day
• Better absorbed with meals
• Dose at 500mg (or less)
• Supplements
  – Calcium carbonate = 40% calcium
  – Calcium citrate = 21% calcium
  – Calcium lactate = 13% calcium
  – Calcium gluconate = 9% calcium
Guiding Principles for Addressing Common Problems of the Elderly

- Reduced Nutrient Reserves
- Reduced Response to Stress
Nutritional Care in Geriatrics

LOW and SLOW
LONGER
Adequate Nutrition for the Vintage Adult

- Select variety of foods from each of the food groups in the Pyramid
- Multivitamin and mineral supplement with 100% Daily Value
Vitamin Research and Implications for the Elderly

- Vitamin D
- B Vitamins
Vitamin D: New Findings

• Most tissues and cells have Vitamin D receptor
  - Skeletal muscles, brain, prostate, breast, colon, immune cells
• Active D controls more than 200 genes which are responsible for:
  - Cell proliferation, differentiation, apoptosis, angiogenesis
• Potent immunomodulator
Serum 25-hydroxyvitamin D

- <20 ng/mL  Deficiency
- 20-29 ng/mL  Insufficiency
- 30-80 ng/mL  Optimal Level
- >80 ng/mL  Possible Toxicity
Prevalance of Deficiency

- 40 to 100% of U.S. & European elderly men & women living in the community are deficient in D

- >50% of postmenopausal women taking medication for osteoporosis have suboptimal levels of D (<30 ng/mL)
Prevention and Maintenance

- 800-1000 IU Vitamin D_3 per day
- 50,000 IU Vitamin D_2 every two weeks or every month
Treatment of Deficiency

- 50,000 IU of Vitamin D$_2$ weekly for 8 weeks
- Repeat for another 8 weeks if 25-hydroxyvitamin D <30ng/mL
B Vitamins: New Findings

- Stroke
- Depression
B Vitamins: Stroke & Transient Ischemic Attack

- Study participants with lowest levels of Vitamin B$_{12}$ were at risk of cerebral ischemia compared to those with the highest levels.

- Combined low folate & B$_{12}$ were also related to increased risk.

*Stroke*, Nov, 2007

European Prospective Investigation Study
B Vitamins: Depression

• Lower levels of serum folate and Vitamin $\text{B}_{12}$ were associated with higher risk of depression in community dwelling elderly

British Journal of Psychiatry, 2008
Stay Tuned!
SUMMARY


