Lifecycle Nutrition

Children, Adolescents, and Grown Ups
Childhood Nutrition

• Energy Needs
  – Energy requirements still high but slow down between 2-5 years of age
  – Appetite will vary with growth spurts

• Insuring Adequate Growth
  – Follow growth chart
  – Provide regularly scheduled meals/snacks
  – Use Food Guide Pyramid as foundation
  – Promote active lifestyle
  – Ensure adequate rest
Energy Needs

Energy requirements:
- 1 year: 800 - 1000 kcalories
- 6 years: 1,600 kcalories
- 10 years: 2,000 kcalories
- Inactivity can lead to obesity.
- Vegans may have difficulty in meeting energy needs.
Nutrient Requirements

- **Carbohydrate:**
  - based on glucose use by the brain.
  - A one-year-old’s brain is large for the size of the body, so the glucose demanded by the one-year-old falls in the adult range.
  - fiber intakes should equal their “age plus 5 grams.”

- **Fat:**
  - DRI range for total fat intakes:
  - 30 to 40% of energy for children age 1 to 3 years of age
  - 25 to 35% of energy for children 4 to 18 years of age

- **Protein**
  - Increase slightly with growth
  - Easily covered by typical US diet
Vitamins/Minerals

• Demand increases with growth
• Generally not need in well-nourished children
• Common deficiency:
  – Iron deficiency anemia: 7% of U.S. toddlers
  – Cause:
    • Switching to whole milk and unfortified milk
    • Diminished iron stores
    • Unreliable food consumption
Encouraging Healthy Eating Habits

• The childhood years are the last chance to influence the child’s food choices.
• Divided responsibility
  – Parent: what the child is offered to eat
  – Child: how much and whether to eat
Encouraging Healthy Eating Habits

• Serve regular meals/snacks
• Respect children’s food preferences
  – Familiar food
  – Mild flavored
  – Warm not hot food
  – Raw veggies over cooked
• Serve age appropriate food portions
• Avoid food battles
• Serve as role model
Encouraging Healthy Eating Habits

• Daily Nutritious Breakfast
  – supports healthy growth and development.
  – Critical to school performance

• School meals???
<table>
<thead>
<tr>
<th>FOOD GROUP</th>
<th>PRESCHOOL (AGE IN YEARS)</th>
<th>GRADE SCHOOL THROUGH HIGH SCHOOLa</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>AGE 1 TO 2</td>
<td>AGE 3 TO 4</td>
</tr>
<tr>
<td>Milk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving of fluid milkb</td>
<td>$\frac{3}{4}$ c</td>
<td>$\frac{3}{4}$ c</td>
</tr>
<tr>
<td>Meat or Meat Alternate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 serving:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lean meat, poultry, or fish</td>
<td>1 oz</td>
<td>$\frac{1}{2}$ oz</td>
</tr>
<tr>
<td>Cheese</td>
<td>1 oz</td>
<td>$\frac{1}{2}$ oz</td>
</tr>
<tr>
<td>Large egg(s)</td>
<td>$\frac{1}{2}$</td>
<td>$\frac{3}{4}$</td>
</tr>
<tr>
<td>Cooked dry beans or peas</td>
<td>$\frac{1}{4}$ c</td>
<td>$\frac{3}{8}$ c</td>
</tr>
<tr>
<td>Peanut butter</td>
<td>2 tbs</td>
<td>3 tbs</td>
</tr>
<tr>
<td>Peanuts, soynuts, tree nuts, or seedsc</td>
<td>$\frac{1}{2}$ oz</td>
<td>$\frac{3}{4}$ oz</td>
</tr>
<tr>
<td>Vegetable and/or Fruit</td>
<td>2 or more servings</td>
<td>$\frac{1}{2}$ c</td>
</tr>
<tr>
<td>Bread or Bread Alternate</td>
<td>5 per week (minimum $\frac{1}{2}$ per day)</td>
<td>8 per week (minimum 1 per day)</td>
</tr>
</tbody>
</table>

aThese patterns may be used so long as the meals served meet the Dietary Guidelines for Americans and provide one-third of the child's recommendations for nutrients.
bWhole milk and unflavored low-fat milk must be offered; flavored milks or fat-free milk may also be offered.
cThese foods may meet no more than one-half serving of meat and must be accompanied by other meat or alternate in the meal.
A serving is 1 slice of whole-grain or enriched bread; a whole-grain or enriched biscuit, roll, muffin, or the like; or $\frac{1}{4}$ cup cooked rice, pasta, or other grain.
Source: U.S. Department of Agriculture.
School Meal Concerns

• Private Vendors
  – offer *competitive foods*,
  – unregulated meals,
  – heavily advertised fast foods,
  – compete with nutritious school lunches.
• Children who choose competitive foods eat less fruits and vegetables.
• Soda and snack vending machines also tempt students.
Nutritional Deficiencies and Excesses

• Iron
  – Deficiency
    • most widespread nutrition problem
    • causes abnormalities in both physical health and behavior.
  – Toxicity
    • major form of poisoning in children.
Nutritional Deficiencies and Excesses

- **Sources of Lead**
  - Paint in older homes
  - Toys
  - Crayons
  - Candy
Childhood Obesity
Body mass index-for-age percentiles:
Boys, 2 to 20 years

Key:
- Overweight ≥95th percentile
- Normal 10th to 85th percentile
- At risk of overweight >85th percentile
- Underweight <10th percentile

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Trends in Child and Adolescent Overweight

Note: Overweight is defined as BMI >= gender- and weight-specific 85th percentile from the 2000 CDC Growth Charts.
Source: National Health Examination Surveys II (ages 6-11) and III (ages 12-17), National Health and Nutrition Examination Surveys I, II, III and 1999-2004, NCHS, CDC.
Childhood Obesity

• 17-20% of children are overweight
• Causes
  – Genetic
  – Environment
    • Learned eating behaviors
    • Provision of less healthy foods
    • Television watching
    • Inactivity
• Concerns
  – Increased fat cells on body
  – More difficult to control weight later in life
  – Increased incidence of diet related diseases at a much younger age
Consequences of Childhood Obesity

- Psychosocial
- Cardiovascular
- Asthma
- Fatty Liver
- Sleep Apnea
- Type 2 Diabetes
- Kidney Stones
Preventing Childhood Obesity

- Insist children consume regular meals and snacks
- Reduce sodas, fruit juices
- Reduce frequency of fast foods and dining out
- Increase fresh fruits/vegetables
- Encourage daily physical activity
- Remove TV from bedrooms
- Limit TV, video games, computer to 1 hr/day
Tweens and Teens

• Rapid growth increase
  – Girls (10-12 years of age)
  – Boys (12-13 years of age)

• Energy and Nutrient Needs
  – Energy: varies greatly dependent upon current growth, gender, body composition, activity levels
  – Nutrients: RDA for most vitamin/minerals increase
Food Choices and Challenges

• Teenagers are not fed; they eat
• Irregular eating habits
• Food availability
• Independence
• Food consumption away from home
• Peer influence
Beverage Consumption

**Key:**
- Girls 11–13 years
- Girls 14–17 years
- Boys 11–13 years
- Boys 14–17 years

**Sodas**

**Key:**
- Girls 12 years who report drinking milk
- Girls 19 years who report drinking milk

**Milk**
Top Ten Reasons to Prepare Family Meals

- Family Connections
- Finances
- Improved Health Status
- Nutritious Food Choices
- Improved Nutrient Intake
- Improved School Performance
- Enhanced Mental Health
- Decrease in Teen Substance Abuse
- Self Sufficiency
- Preserve Food Cultures and Traditions
Making Quick Healthy Meals

- Plan Ahead
- Utilize pre-cut/pre cooked food items
- Have suitable cooking equipment
Shopping for Food

- Shop 1 time per week – find a favorite store
- Use a shopping list
- Shop the perimeter of the store
- Select shopping time that are less crowded
Cooking and Equipment

• Have an organized kitchen
• Put frequently used items in easily accessible areas
• Use Food Processors, Blenders, Choppers
• Microwave
• Pressure Cooker
• Grills
• Toaster Ovens
• Crockpots
Breakfast in a Flash

- Cereal with Fruit and Milk
- Whole Wheat Toast, Yogurt, Fruit
- Oatmeal with Dried Fruit, Milk
- English Muffin Sandwich
- Granola Bar with Yogurt and Fresh Fruit
- French Toast topped with Fruit, Milk
- Breakfast Burrito
Lunch in a Flash

- Chicken Salad, WW Roll, Fruit, Yogurt
- Burrito, Salad, Fruit
- Turkey Sandwich, Fruit, Yogurt
- Stuffed Potato with Veggies, Cheese
- Tuna Salad with Crackers and Fruit
- Panini Sandwich, Salad, Fruit
- Quesadilla, Vegetable Soup, Fruit
Dinner in a Flash

- Grilled Chicken, Sweet Potatoes, Vegetables, Milk
- Spaghetti with Meatballs, Salad, Milk
- Vegetarian Tacos, Mexicali Mixed Vegetables, Milk
- Chicken/Tofu Stir Fry, Steamed Rice, Milk
- Grilled Fish, Red Potatoes, Vegetables, Milk
- Hawaiian Pizza, Tossed Salad, Milk
- Beef Stew, Bread, Salad, Milk
Nutrition and Aging

• Life expectancy has increased in the 20\textsuperscript{th} century
• Factors that enhance longevity include:
  – Alcohol in moderation
  – Consuming regular balanced meals
  – Weight control
  – Regular physical activity
  – Adequate sleep
  – Avoidance of smoking
Searching for the Fountain of Youth

**Table 14-11: Changes with Age You Probably Must Accept**

<table>
<thead>
<tr>
<th>These changes are probably beyond your control:</th>
</tr>
</thead>
<tbody>
<tr>
<td>✔️ Graying of hair</td>
</tr>
<tr>
<td>✔️ Balding</td>
</tr>
<tr>
<td>✔️ Some drying and wrinkling of skin</td>
</tr>
<tr>
<td>✔️ Impairment of near vision</td>
</tr>
<tr>
<td>✔️ Some loss of hearing</td>
</tr>
<tr>
<td>✔️ Reduced taste and smell sensitivity</td>
</tr>
<tr>
<td>✔️ Reduced touch sensitivity</td>
</tr>
<tr>
<td>✔️ Slowed reactions (reflexes)</td>
</tr>
<tr>
<td>✔️ Slowed mental function</td>
</tr>
<tr>
<td>✔️ Diminished visual memory</td>
</tr>
<tr>
<td>✔️ Menopause (women)</td>
</tr>
<tr>
<td>✔️ Loss of fertility (men)</td>
</tr>
<tr>
<td>✔️ Loss of joint elasticity</td>
</tr>
</tbody>
</table>

**Table 14-12: Changes with Age You Probably Can Slow or Prevent**

By exercising, eating an adequate diet, reducing stress, and planning ahead, you may be able to slow or prevent:

✔️ Wrinkling of skin due to sun damage
✔️ Some forms of mental confusion
✔️ Elevated blood pressure
✔️ Accelerated resting heart rate
✔️ Reduced lung capacity and oxygen uptake
✔️ Increased body fatness
✔️ Elevated blood cholesterol
✔️ Slowed energy metabolism
✔️ Decreased maximum work rate
✔️ Loss of sexual functioning
✔️ Loss of joint flexibility
✔️ Diminished oral health: loss of teeth, gum disease
✔️ Bone loss
✔️ Digestive problems, constipation
How Long Will You Live?

• Grab Your Phones..... OH BOY!!!!

• [http://media.nmfn.com/tnetwork/lifespan](http://media.nmfn.com/tnetwork/lifespan)
Aging Process and Effects on Nutrition

• Physiological changes
  – Body weight
  – Body composition
  – Immune system
  – GI tract

• Psychological changes
  – Depression
  – Isolation and loneliness
  – Economic
  – Social
Energy and Nutrient Needs

- Energy needs decline ~2-5%/decade
  - Decreased activity
  - Body composition changes
- Nutrient Needs
  - Protein, carb, fat – similar
  - Vitamins/Minerals
    - B12
    - Vitamin D
    - Calcium
    - Iron
  - Water – dehydration risk
Maintaining Physical Strength
Ensuring Adequate Nutrition

- Seniors at risk for malnutrition
  - Determine (pg 609)

- Food Assistance Programs
  - Congregate meal sites
  - Meals on Wheels
Participation Journal

• How does your lifestyle and the lifestyle of those around you impact longevity?

• What could you do to improve your lifestyle to improve the quality and longevity of your life?