Master of Public Health Thesis Research and Field Experience Presentation

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Master of Public Health Thesis Defense
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Outline of Presentation

Thesis Research Presentation
• Background
• Research Question
• Methods
• Results
• Discussion

Public Health Field Experience Presentation
Questions
The Seated Inactivity Trial (S.I.T.): Physical Activity and Dietary Outcomes Associated with Eight Weeks of Imposed Sedentary Behavior

Brooke J. Cull, Richard R. Rosenkranz, Mark D. Haub, Thomas Lawler, Sara K. Rosenkranz
Kansas State University, Manhattan, KS
Sedentary Behavior Background

• Americans spend approximately 8.4 hours per day engaged in sedentary behaviors (Healy et al., 2011)

Sedentary Time

- All-cause mortality
  (Katzmarzyk et al., 2009)

- Cardiovascular disease
  (Chomistek et al., 2013; Sequin et al., 2014; McGavock et al., 2006; Hamburg et al., 2007; Bey & Hamilton, 2003)

- Type II Diabetes
  (Hu et al, 2003; Hamburg et al., 2007)

- Obesity
  (Hu et al., 2003; Cameron et al., 2003)
Sedentary vs. Inactivity

- Sedentary ≠ Inactive (Tremblay et al., 2010)
- Sedentary behaviors: ≤ 1.5 metabolic equivalents (METS) (Sedentary Behaviour Research Network, 2012)
- Inactivity: not meeting physical activity guidelines – 150 minutes moderate-to-vigorous physical activity (MVPA) per week (How Much Physical Activity, 2013)
Fig. 2. Major contexts for sedentary behaviour and their distribution over a typical adult’s waking hours. (From Dunstan et al. 2010a, reproduced with permission of Touch Briefings, European Endocrinology, Vol. 6, p. 20, © 2010.)
Sedentary Behavior Research

• Sedentary behaviors associated with negative health outcomes

• Will individuals change physical activity or dietary behaviors to attenuate their risk?

Population Level → Individual Level

?
Previous Research

Epstein and colleagues (2002)

• Sedentary time alterations and energy balance in children

• Cross-over study with 3x 3-week phases
  – Baseline
  – 3 weeks of increased sedentary time
  – 3 weeks of decreased sedentary time

• Physical activity: accelerometers

• Dietary intake: 24-hour recall
Previous Research

Epstein et al.

• Increased sedentary time phase
  – Significant increase in positive energy balance
  – Increase in energy intake
  – Decrease in energy expenditure
  – +350 Calories per day = 0.7 pound gain per week
Previous Research

Dale, Corbin, & Dale (2000)

- Analyzed four separate days
  - Two “restricted” days- no PE or recess
  - Two normal days- PE and recess
- Accelerometers worn each day
- Children did not increase PA levels outside of “restricted” school day
Previous Research

Saunders and colleagues (2014)

- PA and dietary intake responses following different levels of imposed sedentary time in children

Fig. 1. Overview of the study protocol (modified from Saunders et al. (16)). Sedentary, a day of uninterrupted sitting; Breaks, a day of sitting interrupted with a 2 min light-intensity walk break every 20 min; Breaks + physical activity (PA), a day of sitting interrupted with a 2 min light-intensity walk break every 20 min as well as 40 min of moderate-intensity PA.
Previous Research

Saunders et al. (continued)

- Food intake (buffet) following intervention
- Accelerometers for 24 hours following intervention
- No significant differences in dietary intake or physical activity
Missing Information in Literature

- Majority of studies involve children
- Most studies have short-term interventions
- How much sitting is too much?
- Active participants
- Will adults make behavior changes in response to imposed sedentary time to attenuate their risk
Research Question

Do active adults make physical activity and/or dietary behavior changes in response to 10 hours of imposed sedentary time per week for 8 weeks?
Methods

16 Young Adults
(Physically active and healthy)

CON Group
N=8
No intervention provided

SIT Group
N=8
10 hours/week imposed sedentary time for 8 weeks
Methods

Assessments at baseline, 4 weeks and 8 weeks

- Diet: 3-Day Food Record
- Physical Activity: Accelerometry
- Markers of CVD and inflammation
- Body Composition: Dual Energy X-ray Absorptiometry
- Height
- Weight
Physical Activity Assessments: Accelerometry

<table>
<thead>
<tr>
<th></th>
<th>AvgEE(mod)</th>
<th>AvgEE(vig)</th>
<th>Time(sed)</th>
<th>Time(light)</th>
<th>Time(mod)</th>
<th>Time(vig)</th>
<th>%Time</th>
</tr>
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<tbody>
<tr>
<td>1</td>
<td>1.09</td>
<td>3.45</td>
<td>9.46</td>
<td>582</td>
<td>501</td>
<td>333</td>
<td>22</td>
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<tr>
<td>2</td>
<td>1.06</td>
<td>3.76</td>
<td>8.93</td>
<td>689</td>
<td>462</td>
<td>257</td>
<td>32</td>
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<td>3</td>
<td>1.16</td>
<td>3.55</td>
<td>8.3</td>
<td>541</td>
<td>474</td>
<td>413</td>
<td>12</td>
</tr>
<tr>
<td>4</td>
<td>1.07</td>
<td>3.48</td>
<td>11.98</td>
<td>528</td>
<td>608</td>
<td>298</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>0.99</td>
<td>3.94</td>
<td>10.82</td>
<td>708</td>
<td>505</td>
<td>178</td>
<td>49</td>
</tr>
<tr>
<td>6</td>
<td>1.13</td>
<td>3.64</td>
<td>9.2</td>
<td>518</td>
<td>501</td>
<td>371</td>
<td>50</td>
</tr>
<tr>
<td>7</td>
<td>1.12</td>
<td>3.49</td>
<td>8.43</td>
<td>643</td>
<td>522</td>
<td>265</td>
<td>10</td>
</tr>
<tr>
<td>8</td>
<td>1.04</td>
<td>3.37</td>
<td>7.0</td>
<td>1185</td>
<td>170</td>
<td>84</td>
<td>1</td>
</tr>
</tbody>
</table>
## 3-Day Food Record

<table>
<thead>
<tr>
<th>Meal</th>
<th>Time</th>
<th>Place</th>
<th>Food</th>
<th>Preparation</th>
<th>Serving Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
<td>8am</td>
<td>H</td>
<td>Cheerios</td>
<td></td>
<td>1.5 cups</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Skim Milk</td>
<td></td>
<td>1 cup</td>
</tr>
<tr>
<td>L</td>
<td>12pm</td>
<td>H</td>
<td>Chicken Breast, skinless</td>
<td>Grilled (with Mrs. Dash)</td>
<td>1 Medium Breast (4 oz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green Leaf Lettuce</td>
<td>Salad</td>
<td>2 cups</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cherry Tomatoes</td>
<td>In Salad</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cucumber</td>
<td>In Salad</td>
<td>½ cup</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Italian Dressing, Kraft Light Done Right</td>
<td>In Salad</td>
<td>2 Tbsp.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Pineapple</td>
<td>Canned, in juice</td>
<td>1 cup</td>
</tr>
<tr>
<td>S</td>
<td>3pm</td>
<td>H</td>
<td>Blueberry Yogurt, Yoplait Light</td>
<td></td>
<td>6 oz container</td>
</tr>
<tr>
<td>D</td>
<td>6pm</td>
<td>H</td>
<td>Orange Roughy</td>
<td>Baked</td>
<td>1 filet (5 oz)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sweet Potato</td>
<td>Baked</td>
<td>1 Medium</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Margarine, Promise</td>
<td>On Sweet Potato</td>
<td>1 tsp.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Broccoli, Frozen</td>
<td>Steamed</td>
<td>1 cup</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Strawberries</td>
<td>Fresh</td>
<td>1 cup</td>
</tr>
<tr>
<td>S</td>
<td>7pm</td>
<td>H</td>
<td>Almonds, unsalted</td>
<td></td>
<td>10 whole</td>
</tr>
</tbody>
</table>
Statistical Analyses

• SPSS Version 19.0
• Repeated measures mixed ANOVA
  – Changes in physical activity and dietary behaviors between and within groups across assessment periods
• Chi-squared tests
  – Association between group membership and changes in physical activity and dietary intake
• Statistical significance set at $p<0.05$
## Baseline Demographics

<table>
<thead>
<tr>
<th></th>
<th>CON Group (n=8)</th>
<th>SIT Group (n=8)</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Age (yr)</strong></td>
<td>mean ± SD 21.6 ± 1.4</td>
<td>range 19 – 24</td>
<td>22.4 ± 3.4</td>
</tr>
<tr>
<td><strong>Body Mass (kg)</strong></td>
<td>69.6 ± 12.4</td>
<td>55.3 – 86.6</td>
<td>73.5 ± 13.3</td>
</tr>
<tr>
<td><strong>Height (cm)</strong></td>
<td>171.5 ± 12.9</td>
<td>152.0 – 187.6</td>
<td>173.6 ± 12.3</td>
</tr>
<tr>
<td><strong>Body Fat %</strong></td>
<td>20.6 ± 10.3</td>
<td>8.8 – 35.6</td>
<td>17.5 ± 7.4</td>
</tr>
<tr>
<td><strong>MVPA (min/day)</strong></td>
<td>155.8 ± 111.0</td>
<td>10.0 – 333.0</td>
<td>185.9 ± 60.9</td>
</tr>
<tr>
<td><strong>Average Steps (per day)</strong></td>
<td>18,526 ± 3,714</td>
<td>14,853 – 26,222</td>
<td>17,816 ± 5,117</td>
</tr>
<tr>
<td><strong>Sedentary Time (min/day)</strong></td>
<td>789.5 ± 322.3</td>
<td>469.4 – 1,309.4</td>
<td>684.1 ± 91.0</td>
</tr>
<tr>
<td><strong>Kilocalories per day</strong></td>
<td>2,501 ± 1,087</td>
<td>1,098 – 4,459</td>
<td>2,734 ± 894</td>
</tr>
<tr>
<td><strong>% Carbohydrate</strong></td>
<td>47.2 ± 6.0</td>
<td>38.7 – 56.4</td>
<td>46.5 ± 10.0</td>
</tr>
<tr>
<td><strong>% Protein</strong></td>
<td>17.1 ± 3.0</td>
<td>13.0 – 21.1</td>
<td>19.7 ± 7.5</td>
</tr>
<tr>
<td><strong>% Fat</strong></td>
<td>34.5 ± 6.0</td>
<td>27.4 – 46.0</td>
<td>29.7 ± 6.0</td>
</tr>
</tbody>
</table>
Physical Activity Results

There were no differences in average steps between or within groups when comparing an average week to a week of imposed sitting ($p>0.05$).
Physical Activity Results

- **Sedentary Time**
  - Average Week: ~600 minutes per day
  - Week of Imposed Sitting: ~650 minutes per day

- **Light Time**
  - Average Week: ~400 minutes per day
  - Week of Imposed Sitting: ~350 minutes per day

- **Moderate Time**
  - Average Week: ~300 minutes per day
  - Week of Imposed Sitting: ~250 minutes per day

- **Vigorous Time**
  - Average Week: ~20 minutes per day
  - Week of Imposed Sitting: ~15 minutes per day
Physical Activity Results

• No changes in total steps (p=0.287), sedentary (p=0.366), light (p=0.293), moderate (p=0.656) or vigorous (p=0.701) physical activity
  – Typical week vs. imposed sitting week

• A significantly greater proportion of SIT (4/8) participants decreased steps compared to CON (1/8) participants (p<0.001)
Physical Activity Results

SIT Group Average Daily Steps

Step Counts

Average Week

Week of Imposed Sitting
Dietary Intake Results

Average Calories Per Timepoint

*Statistically significant decrease in total calories from baseline to week 8 in SIT only ($p=0.012$)
Dietary Intake Results

Average caloric intake decreased significantly in the SIT group by approximately 28% compared to the CON group, where average caloric intake increased by approximately 10%. Error bars indicate standard deviation. *CON vs SIT were statistically different at p<0.05 level.
Dietary Intake Results

Total Calories

Percent Dietary Carbohydrate

Percent Dietary Protein

Percent Dietary Fat

* \( p < 0.05 \)
Discussion

• In response to imposed sedentary time, physically active adults
  – Did not change physical activity behaviors
  – Decreased caloric intake

• Possible dietary compensation to imposed sitting in physically active adults

• A greater proportion of SIT participants decreased steps
  – Possibility of future negative health outcomes
Alignment with Previous Research

Epstein (2002)
• Children increased caloric intake and decreased energy expenditure
• Our dietary intake results are in contrast

Saunders (2014)
• Children did not change physical activity levels or dietary intake after full day of sitting
• Our physical activity findings are consistent, but dietary intake results are in contrast
Experimental Strengths

• Long-term intervention
• Two cohorts over two semesters
• Monitored sedentary sessions
• Minimal recall bias
• Objectively measured physical activity
• No participant drop-out

What did I eat yesterday?
Future Directions

- Dose-response relationship
- Obtain fuller picture of the day
- Different study groups
- Further research to understand complexity of behavior change and the impacts on chronic-disease risk profiles
References


References


Sedentary Break
Riley County Research and Extension

- Extends education and research into communities, worksites and homes
- “Dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis and education.” (Riley County, 2013)
Field Experience Preceptor

- Virginia (Ginny) Barnard, MPH
- Family and Consumer Sciences Agent
- Specialty Areas:
  - Food and Nutrition
  - Food Safety
  - Health and Safety
  - Indoor Environments
- Organizes and runs the Walk Kansas program and nutrition education lessons at local elementary schools
Focus and Scope of Field Experience

• Walk Kansas Program
• Junior Master Gardener Series
• Nutrition Education for elementary schools
Learning Objectives

1. Understand how to organize and implement a community-wide physical activity program
2. Identify successful recruitment methods and ways to reach diverse groups in Riley County
3. Recognize and implement ways to keep participants motivated in their physical activity and nutrition efforts
4. Gain an understanding of how public health works in a community-wide setting
Walk Kansas Background

- Eight week community-wide health promotion program
  - Physical Activity
  - Healthy Eating
- State-wide program
- Teams of 6-8 members
- Participants log physical activity minutes and fruit/vegetable consumption
Walk Kansas Background

- Team members select a challenge for themselves
  - **Challenge 1: Walk Across Kansas**
    - Each member: 150 minutes MVPA per week
  - **Challenge 2: Walk Across Kansas and Back**
    - Each member: Five hours of physical activity per week
  - **Challenge 3: Walk Around the Perimeter of Kansas**
    - Each member: Six hours of physical activity per week
Walk Kansas Effectiveness Research

• Community-wide programs and social support campaigns show strong evidence for increasing PA levels (Kahn et al. 2002)

• Walk Kansas is effective in increasing MVPA levels (Estabrooks et al., 2008)
  – Increase in PA dependent upon PA levels at baseline
  – Significant increase in moderate ($p<0.001$) and vigorous ($p<0.001$) activity for those inactive at baseline
Walk Kansas Activities

Preparation for Walk Kansas

• Created, updated and delivered documents for recruitment
• Modified participant packet information
• Online registration and apparel ordering system
• Entered teams into the database and organized team files
Walk Kansas Kick-Off Event

• Organized and held a kick-off event
• Manhattan Town Center Mall
• Activities included:
  – Mall Walk
  – Door Prizes
  – Apparel Sales
  – Group interaction and team-building
Walk Kansas Activities

During the Walk Kansas program

• Set up online reporting system, usernames and passwords
• Contacted participants with problems
• Emailed participants each week
  – Weekly newsletters
  – Captain’s letters
Celebration Event Activities

• Planned, organized and hosted celebration event
• Prepared food
• Contacted local businesses for donations
• Provided team statistics
• Distributed program evaluation surveys
2. During the 8 weeks of Walk Kansas, I reached the minimum goal for physical activity – 150 minutes of moderate/vigorous activity per week.

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td></td>
<td>72</td>
<td>86%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td></td>
<td>12</td>
<td>14%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>84</td>
<td></td>
</tr>
</tbody>
</table>

3. If you answered “yes” to the previous question, please indicate how confident you are in your ability to continue this amount of physical activity over the next 6 months.

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Completely confident</td>
<td></td>
<td>33</td>
<td>46%</td>
</tr>
<tr>
<td>2</td>
<td>Confident</td>
<td></td>
<td>30</td>
<td>42%</td>
</tr>
<tr>
<td>3</td>
<td>More often than not</td>
<td></td>
<td>8</td>
<td>11%</td>
</tr>
<tr>
<td>4</td>
<td>Somewhat confident</td>
<td></td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>5</td>
<td>Not confident</td>
<td></td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>72</td>
<td></td>
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</table>
Walk Kansas Evaluation Surveys

7. During the 8 weeks of Walk Kansas I ate more fruits and/or vegetables.

<table>
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<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td></td>
<td>60</td>
<td>72%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td></td>
<td>23</td>
<td>28%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>83</td>
<td></td>
</tr>
</tbody>
</table>

8. If you answered yes to the previous question, indicate how confident you are that you will continue to eat this amount of fruits and/or vegetables over the next 6 months.

<table>
<thead>
<tr>
<th>#</th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Strongly agree</td>
<td></td>
<td>29</td>
<td>47%</td>
</tr>
<tr>
<td>2</td>
<td>Agree</td>
<td></td>
<td>25</td>
<td>40%</td>
</tr>
<tr>
<td>3</td>
<td>Neither Agree nor Disagree</td>
<td></td>
<td>6</td>
<td>10%</td>
</tr>
<tr>
<td>4</td>
<td>Disagree</td>
<td></td>
<td>2</td>
<td>3%</td>
</tr>
<tr>
<td>5</td>
<td>Strongly Disagree</td>
<td></td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
<td>62</td>
<td></td>
</tr>
</tbody>
</table>
9. As a result of this program I have adopted healthier lifestyle habits.

<table>
<thead>
<tr>
<th></th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td></td>
<td>64</td>
<td>79%</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td></td>
<td>17</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td></td>
<td>81</td>
<td></td>
</tr>
</tbody>
</table>

10. If you experienced any physical or mental changes as a result of this program, check all that apply.

<table>
<thead>
<tr>
<th></th>
<th>Answer</th>
<th>Bar</th>
<th>Response</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Increased energy</td>
<td></td>
<td>39</td>
<td>59%</td>
</tr>
<tr>
<td>2</td>
<td>Increased endurance</td>
<td></td>
<td>23</td>
<td>35%</td>
</tr>
<tr>
<td>3</td>
<td>Increased muscle strength</td>
<td></td>
<td>24</td>
<td>36%</td>
</tr>
<tr>
<td>4</td>
<td>Increased flexibility</td>
<td></td>
<td>14</td>
<td>21%</td>
</tr>
<tr>
<td>5</td>
<td>Lower blood pressure</td>
<td></td>
<td>11</td>
<td>17%</td>
</tr>
<tr>
<td>6</td>
<td>Lower cholesterol</td>
<td></td>
<td>7</td>
<td>11%</td>
</tr>
<tr>
<td>7</td>
<td>Better attitude</td>
<td></td>
<td>41</td>
<td>62%</td>
</tr>
<tr>
<td>8</td>
<td>Better able to manage stress</td>
<td></td>
<td>15</td>
<td>23%</td>
</tr>
<tr>
<td>9</td>
<td>Improved sleep</td>
<td></td>
<td>22</td>
<td>33%</td>
</tr>
<tr>
<td>10</td>
<td>Decreased weight</td>
<td></td>
<td>18</td>
<td>27%</td>
</tr>
</tbody>
</table>
Nutrition Education Background

• Gardening and nutrition education at local elementary schools
• Four weeks of gardening instruction/planting
  – Part of Junior Master Gardener series
• Five weeks of nutrition education
School-Based Nutrition Education Effectiveness Research

- School-based nutrition education can be effective in increasing the nutrition knowledge (Contento et al., 1992)
  - Short-term instruction increases knowledge, skills and self-efficacy, but does not significantly lead to behavior change
  - Consistent, long-term programs needed for food choice behavior changes
Garden-Enhanced Nutrition Education Research

- Garden-enhanced nutrition programs can increase children’s preference for vegetables (Morris et al., 2002)
- McAleese and Rankin (2007)
  - Effectiveness of garden-enhanced nutrition education in increasing students’ fruit and vegetable consumption

- Group 1: Nutrition Education
- Group 2: Nutrition Education PLUS Gardening
- Group 3: Control Group

Increased Fruit and Vegetable Consumption
Garden-Enhanced Nutrition Education

• Local elementary schools
• Gardening lessons involved:
  – Types of plants
  – Cycle from farms to harvest to our plates
  – Planting, weeding and watering
Nutrition Education

• Five weeks of instruction (45 minutes per session)
• Topics Covered
  – Vitamins and Minerals
  – Carbohydrates
  – Fats
  – Protein
  – Water
• Ended each lesson with the preparation of a snack
  – Air-popped popcorn, bean dip with vegetables, fruit smoothies, fresh garden salads
6 Nutrient Categories

1) Fat
Provides ________ to the body.
1 gram of fat = _____ calories (energy).
Fat is divided into two categories:
1) ____________
   → are hard at room temperature
   → examples: stick of butter/margarine
2) ____________
   → are liquid at room temperature
   → examples: vegetable oils

2) Carbohydrates
Body’s main source of ________.
1 gram of carbohydrate = _____ calories (energy).
If you skip ________, your body may run ________ on energy.
Examples of carbohydrates:
   vegetables, fruits, table sugar, rice, bread, pasta

3) Protein
Provides ________ to the body.
1 gram of protein = _____ calories (energy).
Protein helps your body ________, ________, and ________
disease.
Examples of protein:
   meat, poultry, fish, eggs, beans, peas, nuts, and dairy products

4) Water
Provides _____ calories.
Water helps your body ________ nutrients, ________ waste, and
__________ body temperature.
Your body is ________ water!
Your blood is ________ water!
Sources of water:
   plain water, milk, juice, sports drinks, and many foods
   (watermelon is over 90% water!)

5) Vitamins
Provide _____ calories.
Only needed in ________ amounts.
They help the body:
   → build tissue
   → regulate body function
   → help other nutrients do their job
Sources of vitamins:
   fruits, vegetables, whole grains, nuts, meats, milk

6) Minerals
Provide _____ calories.
Promote good health while regulating body functions AND become
part of your ________, ________, and ________.
Your bones need __________, __________, and
________________ to grow.
Your blood needs ________ to help red blood cells carry oxygen to
all parts of your body.
Alignment with Public Health Competencies

**Biostatistics**
- Survey method for Walk Kansas
- Analyzed baseline demographic data and compiled a report
- Learned the proper use of measurement techniques, data acquisition and analysis of data

**Environmental Health**
- Topics in gardening and nutrition education
- Food safety regarding handling and washing of garden vegetables
Alignment with Public Health Competencies

**Epidemiology**
- Reading and critical analysis of published literature
- Ethical research practices, potential biases, maintenance and use of epidemiological data

**Healthcare Administration**
- Gained insight into the ways public health impacts the health of our communities
- Learned that public health professionals have a key role in society’s healthcare, by promoting disease prevention and healthy lifestyles
Alignment with Public Health Competencies

Social and Behavioral Sciences

• Promoted physical activity and nutrition in several areas of the community
• Helped to provide opportunities for successful behavior change
• Best laid-out programs are meaningless if people don’t have access or a willingness to participate
Conclusion

• Education and experience gained through the MPH program has changed the way I view the world and our nation’s public health
• My education, research and field experience have given me the skills to advance the mission of the public health profession
• I will continue on at Kansas State University for a PhD in Human Nutrition (Public Health Nutrition)
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References


Questions?