EFFECT OF BEHAVIORALLY ORIENTED NUTRITION EDUCATION PROGRAM ON CHILDREN’S HEALTHY EATING

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Outline

• Introduction
• Methods
• Results
• Conclusion

• Field Experience Report
Global Concern

- Overweight and obesity remains a matter of urgency (Ng et al., 2013)
- Overweight/obese populations are at risk of developing heart problems, diabetes, metabolic syndrome, stroke, certain types of cancer, and other diseases or complications (Guh et al., 2009)
Contributing Factors

Butland et al., 2007
Situation in Russia

The Russian Federation Ministry of Healthcare (2012):

- ≈ 50% of adult population is overweight or obese
- Increasing (almost doubled) since mid-1990s
- Prevalence of obesity in children is 5.5% in rural areas, and 8.5% in urban areas (Peterkova, & Remizov, 2004)
The Traditional Russian Diet

High in sugars, meat and dairy products (Huffman, & Rizov, 2007):

• Meat consumption was favored since times of Soviet Union
• High dairy products intake
• Low in fruits and vegetables intake

People also tend to buy cheaper products (potatoes, processed sugars) rather than fruits, vegetables, fish, poultry (Staudigel, 2011)
Why Target Kids?

• Obesity in childhood, adolescence results in weight-related problems and various health problems in older adults (Daniels, 2006)
• Childhood and adolescence are key times when people establish their habits and tend to maintain those into adulthood (Wang, & Beydoun, 2007)
“Classic” Nutrition Education

- set of planned educational activities
- targeted at certain population groups
- theory-based

http://study.com/articles/5_Majors_for_People_Who_Like_Kids.html

(Gil’s publication (as cited in McNulty, 2013))
“Enhanced” Nutrition Education

Sims, 1987
Lytle, & Achterberg, 1995
Sharma, 2011
Objective

• To evaluate the overall effectiveness of behaviorally-oriented theory-based “enhanced” nutrition education program (intervention condition) in Russian children

• Effectiveness of “enhanced” nutrition education compared to “classic” nutrition education (comparison) in terms of:
  - nutrition knowledge
  - behavior change
  - healthy eating attitudes
  - self-efficacy
Hypotheses

• Both conditions will show statistically significant improvement from baseline to post-intervention in terms of:
  - nutrition knowledge
  - behavior change
  - healthy eating attitudes
  - self-efficacy

• Intervention condition will show statistically significant improvement in outcomes as opposed to comparison group
Camp Setting
Study Design

Recruited participants
n=40 (19 boys)

Intervention group (INT)
n=20 (11 boys)
15 theory-based nutrition education sessions (60 min) with skill-training component

Comparison group (COM)
n=20 (8 boys)
15 theory-based classic nutrition education sessions (45 min)

Baseline assessment

Post-intervention assessment
HOP’N Program

• Designed as an intervention to target skill development and self-efficacy in kids, and the program used Social Cognitive Theory construct (Dzewaltowski et al., 2010)

• Program modules on healthful eating focus on increasing fruit and vegetable consumption as well as promoting water consumption

Picture from:
Anthropometric Measurements

- Height
- Weight
- Waist circumference
# Nutrition Knowledge Assessment

**Nutrition Knowledge**

What do you think health professionals recommend to eat?

<table>
<thead>
<tr>
<th></th>
<th>More</th>
<th>Same</th>
<th>Less</th>
<th>Not sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Vegetables</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>b. Fruits</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>c. Meat</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>d. Sugary foods</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>e. Starchy foods</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>f. Fatty foods</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>g. High-fibre foods</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
<tr>
<td>h. Salty foods</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>

How many servings of fruit do you think we should eat per day (in cups)?  

How many servings of vegetables do you think we should eat per day (in cups)?

(Parmenter, & Wardle, 1999)
Healthy Eating Behaviors

Menu

Carrot sticks “DIAMOND EYE”

Crackers

Walnuts “SUPER BRAIN”

Cookies

Grapes “MIGHTY BOGATYR”

Cereal

(Hanks, Just, & Wansink, 2013)
Healthy Eating Attitudes

<table>
<thead>
<tr>
<th>Fruits and vegetables consumption attitudes</th>
<th>Strongly agree</th>
<th>Agree a little</th>
<th>Not sure</th>
<th>Disagree a little</th>
<th>Strongly disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>a. Eating vegetables makes me feel healthy</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>b. I like the taste of many vegetables</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>c. In my home, vegetables are served at dinner most nights</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>d. I like tasting new vegetables that I haven’t tried before</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>e. It is easy to prepare vegetables to eat e.g. make a salad</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>f. Eating fruit makes me feel healthy</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>g. I like the taste of most fruit</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>h. Fruit is an easy snack</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>i. I like tasting new fruits that I haven’t tried before</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>j. In my home fruit is available to eat at any time</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>l. I like to drink water</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td><strong>m. I ask my parents to buy foods or drinks that I see advertised on television</strong></td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

(Wilson, Magarey, & Mastersson, 2008)
Self-efficacy Assessment

Self-efficacy.

How sure are you that you can eat...?

<table>
<thead>
<tr>
<th></th>
<th>Not at all sure</th>
<th>Somewhat sure</th>
<th>Very sure</th>
</tr>
</thead>
<tbody>
<tr>
<td>One serving (1/2 cup) of fruit each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two servings (1 cup) of fruit each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three servings (1.5 cup) of fruit each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>One serving (1/2 cup) of vegetables each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Two servings (1 cup) of vegetables each day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Three servings (1.5 cup) of vegetables each day</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

You are done!

Thank you!

(Geller, Dzewaltowski, Rosenkranz, & Karteroliotis, 2009; Dzewaltowski et al., 2010)
Statistics

- SPSS version 22.0;
- Descriptive statistics to assess differences at baseline
- *Independent t-tests* (change scores) to assess the hypothesis whether there were significant differences between intervention and comparison group for changes in outcomes;
- *Paired t-tests* were performed to test whether there were significant differences from baseline to post-intervention within both conditions regarding the outcomes;
- Cronbach’s alpha was run to assess internal consistency of each survey part
- Statistical significance was set at $p<0.05$
## Participant Characteristics

<table>
<thead>
<tr>
<th>Table 3.1 Baseline participant characteristics (anthropometrics)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>Age (years)</td>
</tr>
<tr>
<td>10.35 ± 1.0</td>
</tr>
<tr>
<td>Body mass (kg)</td>
</tr>
<tr>
<td>Height (cm)</td>
</tr>
<tr>
<td>BMI percentile</td>
</tr>
<tr>
<td>BMI</td>
</tr>
</tbody>
</table>
Nutrition Knowledge

Figure 3.1 Mean scores for nutrition knowledge.

Higher scores indicate better knowledge in study participants
Error bars indicate 95% CI
*Statistically significant difference between baseline and post-intervention scores (p<0.05)
Healthy Eating Behavior

Figure 3.2 Mean scores for healthy eating behavior.

Lower scores indicate healthier snack choices (fruit, vegetable or walnuts over cookies, crackers or cereal) in study participants.
Error bars indicate 95% CI.
*Statistically significant difference between baseline and post-intervention scores ($p<0.05$)
Healthy Eating Attitudes

Figure 3.3 Mean scores for healthy eating attitudes.

Lower scores indicate positive attitudes to healthy eating (fruit, vegetable consumption) in study participants.
Error bars indicate 95% CI.
*Statistically significant difference between baseline and post-intervention scores ($p<0.05$)
Self-efficacy

Figure 3.4 Mean scores for self-efficacy in eating fruit.

Higher scores indicate higher self-efficacy in study participants. Error bars indicate 95% CI.
Self-efficacy

Figure 3.5 Mean scores for self-efficacy in eating vegetables.

Higher scores indicate higher self-efficacy in study participants. Error bars indicate 95% CI.
Major Findings

• $H_0$: Both conditions will show statistically significant improvement from baseline to post-intervention in terms of:
  - nutrition knowledge
  - behavior change
  - healthy eating attitudes
  - self-efficacy

Our results showed that was supported for all the outcomes listed (except self-efficacy) regardless of intervention condition
Major Findings

- $H_0$: The intervention group would show greater changes than the comparison group.

Our results showed that was not supported.
Strengths Of The Current Study

- The first intervention in the Russian summer camp context
- 100% participation rate for all 3 weeks
- Short interventions (10-15 hours over 3-15 week period) result in positive effects on nutrition knowledge, skills related to healthy eating practices, healthy eating behavior
- The study utilized an index of behavior change (Snack menus)
- The present study utilized well-structured, previously published educational materials that were shown to be effective
Limitations

• The study was based on a convenience sample
• No true random allocation of study participants into intervention or comparison group occurred
• Quasi-experimental design with no true control group
• Data were collected by self-report, and may be subject to recall bias
• Social desirability bias
• Lower Cronbach’s alpha for attitudes towards eating fruit and vegetables (at acceptable, but not adequate level)
• Small sample size
• Potential for contamination effects
• Results might not be generalizable
Future Directions

• Fully powered randomized controlled trial design
• Incorporate not only larger sample size potentially including at-risk populations, but longer duration programs
• Future research should also focus on nutrition education interventions accompanied by environmental changes
Conclusion

The present study shows the positive impact of theory-based nutrition education program with or without skill-training component on youth’s nutrition knowledge, healthy eating behavior and attitudes.

Further research and implementation of nutrition education programs in Russian school-aged children is warranted.
Questions?
References


References (cont.)


Field Experience Report

K-State Research and Extension
January 15, 2015 – March 12, 2015
(180 hours)
Virginia (Ginny) Barnard
K-State Research and Extension

• **Goal:** to assist the population technically and to provide evidence-based programs to the community

• KSU for Riley County

• Flint Hills Wellness Coalition
Virginia Barnard

- MPH (Kansas State University)
- Family and Consumer Sciences Agent for Riley County
- Ginny is involved in numerous projects/programs regarding nutrition, food safety, healthy lifestyles, overall well-being

Scope of work

• Nutrition Education for Child Basketball Teams
• DIET FREE
• Lunch Series Lectures for City Hall employees
• Flint Hills Wellness Coalition meetings

https://www.pinterest.com/magdalhotsky/cookies/
http://www.morrishospital.org/whats-new/diet-free/
Learning objectives

• To gain a deeper understanding of the motivations/barriers for adults wanting to make healthy behavior changes
• To learn what established social norms, traditions, and environmental factors influence and individual’s ability to increase physical activity and improve access to healthy foods
• To be able to describe what internal/external rewards adults may need to successfully change health behaviors
• Was to understand how community partners/organizations work together to impact access to healthy foods and support physical activity
• To consider the scope of work of K-State Research and Extension
Nutrition Education for Child Basketball Teams

- Recruited teams through Parks and Rec office
- Developed a flyer for coaches
Nutrition Education for Child Basketball Teams

- At baseline we had 6 teams
- We developed 3 sessions:
  - Macronutrients and importance of pre-exercise or pre-game meals and snacks
  - Basic information about glycogen and post-exercise and post-game ideas for healthy meals and snacks
  - Importance of proper hydration
- At follow-up we had 3 teams
Fueling for Success

**Do**

Day Before: **Do consume:**
- plenty of complex carbs (whole grains, veggies, and fruits)
- moderate source of low-fat protein

3 to 4 hours before: **Do consume meal/snack:**
- high in complex carbs
- moderate in protein
- low in fat

Immediately before: **Do consume low calorie snack with high-carbohydrate and low-protein**

**Don’t**

Day Before: **Don’t consume:**
- foods with little nutritional value (fast food, highly processed foods, sodas, etc.)

3 to 4 hours before: **Don’t consume meal/snack:**
- high in fat
- simple carbohydrates
- with new foods

Immediately before: **Don’t consume:**
- high fiber foods
- high fat foods

**Carbohydrates**

Your body stores carbohydrates as glycogen, which is quickly available to use as fuel. Carbohydrate consumption during high-intensity competition can prevent muscle glycogen depletion and can improve performance.

**Protein**

Your protein needs can easily be met if you are eating enough food from a balanced diet, and you avoid empty calories (foods that are high in added sugars and/or solid fats with little nutritional value).

**Fat**

You need fat in your diet, so do not try to eliminate it completely. Instead, incorporate omega-3 fat containing foods like fatty fish (tuna, salmon), walnuts, and flaxseeds into your diet. This type of fat is heart healthy and prevents inflammation. Olive and canola oil, or foods containing them, are also monounsaturated fat that is heart healthy.
**Fueling for Success**

**Do**
- **Within 15 minutes:** Do consume:
  - liquid carbohydrate
  - juice, milk, and sports drink as needed
- **Within 2 hours:** Do consume meal/snack:
  - high in carbohydrate, preferably complex carbs
  - moderate in protein
  - low in fat
  - pasta with lean meat, chocolate milk

**Why**
- carbohydrate will help to restore glycogen in muscles
- reduce fatigue/low energy level
- protein will help your muscles recover and grow stronger
- combination of protein and carbs helps to optimize glycogen replacement

**Glycogen**
- an energy storage molecule in your muscles
- composed of glucose molecules
- is an easily available source of energy for your muscles during exercise
- within an hour after exercise your body is most efficient in producing glycogen

**Benefits of Post-Exercise Meal**
- improved recovery
- reduced soreness
- improved immune function
- improved bone strength and density
- improved body fat utilization
Session 3

**Hydrate for Success**

- **Before Practice/Game:**
  - 2-3 hours before, drink 12-16 oz water (about 1-1½ standard bottles)
  - 10-15 min before, drink 5-8 oz water (about 1/2 standard bottle)

- **During Practice:**
  - Use thirst as an indicator for drinking
  - Take drinks during breaks (5 oz)

- **After Practice:**
  - Immediately afterwards, replace fluids lost during exercise
  - For every pound lost during exercise, consume 24 oz

**Benefits of Hydrating**
- Water helps regulate body temperature which could prevent headaches, nausea, and exhaustion
- Water prevents muscle cramps
- Water helps with nutrient transport and waste removal in the body

**Effects of Dehydration**
- Even small level of dehydration (1-2%) can have negative impacts on heart rate, core temperature, heart and lung function
- In extreme cases, dehydration can increase risk of kidney failure

**Key Points**
- **WATER** is the best fluid, especially if the practice/game lasts less than one hour
- **Pre-hydrating** before completion can decrease risk of dehydration during the game
- Consuming a dilute carbohydrate solution before and after exercise can increase fluid absorption (≤19g per 8oz)
- Consuming beverages with sodium and/or salted snacks with water can help retain fluid (50-170mg per 8oz)
- Consuming a whole 20 oz Gatorade is not necessary
  - An 8oz serving will adequately replace ions lost during a 1-hour game or practice

**Estimate sweat rate:**

1. weight before training – weight after training = total weight loss
2. fluid consumed during exercise (15oz = 1lb)
3. (total weight loss during training + weight of fluid consumed) / total hours of training = sweat rate

Replace 150% of fluids lost per hour.

**Recommended serving sizes:**
- Low-fat chocolate milk = 6oz
- 100% fruit juice = 4oz
- Gatorade = 8oz
Snack Tasting
Child Survey

### Name: ___________________________  Team: ___________________________

Age: ______  Gender: M / F  Date: ___________________________

1. How often do you usually do the following? Tick one box in each row.

<table>
<thead>
<tr>
<th>Never/rarely</th>
<th>Less than once/week</th>
<th>About 1-3 times/week</th>
<th>About 4-6 times/week</th>
<th>Every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Drink water</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>b. Drink fruit juice or fruit juice drink</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>c. Drink soda (not including diet soda)</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>d. Carry a water bottle</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>e. Eat chocolate or candy</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>f. French fries</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>g. Eat potato chips</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>h. Eat fast food</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>i. Help choose or buy groceries for the family</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>j. Help prepare your dinner</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>k. Eat dinner with most of the family</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>l. Eat snacks in front of the television</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>

2. How many serves of vegetables do you usually eat each day?
(1 serving = 1 cup of salad vegetables, OR ½ a cup of cooked vegetables, OR 1 medium potato)

   - [ ] I don’t eat vegetables
   - [ ] Less than 1 serve a day
   - [ ] 1-2 serves a day
   - [ ] 3-5 serves a day
   - [ ] More than 3 serves a day

3. How many serves of fruit do you usually eat each day?
(1 serving = 1 medium piece, OR 2 small pieces of fruit e.g. clementine ("Cute!"), OR 1 cup of sliced pieces)

   - [ ] I don’t eat vegetables
   - [ ] Less than 1 serve a day
   - [ ] 1-2 serves a day
   - [ ] 3-5 serves a day
   - [ ] More than 3 serves a day

How many servings of fruit do you think we should eat per day? ______

How many servings of vegetables do you think we should eat per day? ______

1. How beneficial is being properly hydrated for your athletic performance? (Select one)

   - Not beneficial at all
   - Not very beneficial
   - Somewhat beneficial
   - Beneficial
   - Very beneficial
   - Completely beneficial

2. How beneficial is maintaining a healthy diet for your athletic performance? (Select one)

   - Not beneficial at all
   - Not very beneficial
   - Somewhat beneficial
   - Beneficial
   - Very beneficial
   - Completely beneficial

3. How beneficial is eating throughout the day (before practice/game) for your athletic performance? (Select one)

   - Not beneficial at all
   - Not very beneficial
   - Somewhat beneficial
   - Beneficial
   - Very beneficial
   - Completely beneficial

4. How beneficial is eating after practice/game for recovery and future athletic performance? (Select one)

   - Not beneficial at all
   - Not very beneficial
   - Somewhat beneficial
   - Beneficial
   - Very beneficial
   - Completely beneficial
Nutrition Education for Child Basketball Teams

Higher scores indicate better knowledge in participants.
Error bars indicate 95% CI.
*Statistically significant difference between baseline and follow-up knowledge scores (p < 0.05)
DIET FREE

- Zonya Foco, RD
- 10 sessions, 8 habits
  - Drink water
  - Include breakfast
  - Eat often and include a fruit or vegetable each time
  - Tame your sweet tooth
  - Find the fat
  - Replace processed foods with wholesome
  - Eat until no longer hungry
  - Exercise every day
DIET FREE Activities
DIET FREE Activities
DIET FREE Assessment

Self-Assessment Snapshot

Take a self-assessment snapshot of your health, both physically and emotionally, when you begin the DIET FREE program. Choose the number that most accurately reflects how strongly you disagree or agree with the statement.

After learning one habit a week, at least eight weeks from the date of beginning the program, repeat the self-assessment snapshot and compare. I also recommend repeating this assessment every six months to evaluate and celebrate your DIET FREE health benefits.

**Snapshot at beginning of program**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a positive energy all day</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I sleep soundly and without pain</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I feel good in the clothes I wear</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I am physically active</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I breathe easy</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I can walk, bend and move easily</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>My mood is typically positive</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
</tbody>
</table>

**Total of all circled numbers**

**Snapshot at end of program (min. 8 weeks)**

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly Disagree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>I have a positive energy all day</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I sleep soundly and without pain</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I feel good in the clothes I wear</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I am physically active</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I breathe easy</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>I can walk, bend and move easily</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
<tr>
<td>My mood is typically positive</td>
<td>1 2 3 4 5 6 7 8 9</td>
<td>10</td>
</tr>
</tbody>
</table>

**Total of all circled numbers**

**Did your total increase?**

**How do you feel about this change?**

Current Knowledge and Habits Survey

Take a moment to answer the following questions with a yes (Y) or no (N). You should repeat the assessment at the end of the DIET FREE program to help evaluate the knowledge you’ve gained and changes you’ve made.

<table>
<thead>
<tr>
<th>Start Date</th>
<th>End Date</th>
<th>Current Knowledge and Everyday Habits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I know what trans and saturated fats are, and try to limit the amount I eat.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>If someone brings in donuts, I do not eat them 90 percent of the time.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I eat breakfast every day.</td>
</tr>
<tr>
<td>Y N N Y N</td>
<td>Y N N Y</td>
<td>I am diligent about not eating two to three hours before bedtime.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I often eat at least seven servings of fruit or vegetables each day.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I have a fruit bowl prominently displayed and regularly filled at home and at work.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>When choosing bread, cereal, rice and pasta, I choose whole-grain products most of the time.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>My beverage of choice is water, and I am good about limiting the amount of calorie-laden beverages.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>Faced with the large portions typically served in restaurants, I often share my meal or save the rest for later.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I avoid processed food, and choose wholesome and natural options instead.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I participate in 30 minutes or more of physical activity most days of the week.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>When I eat, it is because I am physically hungry and not to “feed my emotions.”</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I can thoroughly enjoy a small sweet treat without feeling guilty and without overindulging.</td>
</tr>
<tr>
<td>Y N Y N Y</td>
<td>Y N Y N</td>
<td>I rarely leave home without a bottle of water and some healthy snacks.</td>
</tr>
</tbody>
</table>

**Total "YES" Answers:**

**Total "YES" Answers:**

**How do I feel about this change?**
DIET FREE Results

Diet Free Health Behavior/Knowledge

Higher scores indicate better behavior/knowledge in participants
Error bars indicate 95% CI
*Statistically significant difference between baseline and follow-up health behavior/knowledge scores (p < 0.05)
Alignment with Public Health Competencies

- **Biostatistics:**
  - Utilized surveys
  - Ran statistical analyses on the data set

- **Environmental health:**
  - Flint Hills Wellness Coalition meetings (tobacco use, and food safety and availability)

- **Epidemiology:**
  - Background research for interventions for both thesis and field experience
  - Analyzing published literature
Alignment with Public Health Competencies

• Healthcare administration:
  - Role of K-State Research and Extension office for the Riley County healthcare services
  - Importance of community-based programs

• Social and behavioral sciences:
  - Healthy eating and physical activity promotion for the community while working on both thesis and field experience
  - Helped to provide opportunities for behavior change
Conclusion

• I became more observant and passionate about my field of interests

• I learnt a lot from my professors and mentors, but I do understand that there is still a lot to learn about and to explore
Acknowledgements

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