

Master of Public Health Field Experience Report

HEALTH AND WELLNESS FIELD EXPERIENCE AT RILEY COUNTY RESEARCH AND EXTENSION

by

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submitted in partial fulfillment of the requirements for the degree

MASTER OF PUBLIC HEALTH

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Summary

My time at research and extension began on January 7, 2015 and lasted until April 15, 2015. During this time I completed my required one hundred and eighty hours of experience at the courthouse office as well as other program locations: schools and public buildings in the city of Manhattan. Throughout my time at Riley County Research and Extension, I was supervised by Virginia (Ginny) Barnard, MPH. Ginny, a former Kansas State MPH alumnus, is currently a Riley County Extension agent in Family and Consumer Sciences. As a Family and Consumer Sciences agent she is responsible for developing and implementing educational programs on family issues relevant to nutrition, food safety, parenting, financial management, health and safety, and family and personal relationships (Riley County, 2015b). Ginny has many responsibilities as a member of various coalitions and committees as well as the director of many health and wellness programs, and she allowed me to attend and work on some of these projects throughout my field experience. I was assigned to two major programs and several secondary programs to work on while at Extension; DIET FREE, a healthful lifestyle adoption program, and Manhattan Parks and Recreation youth basketball sports nutrition education programs were my two major programs. My secondary roles were to assist Ginny in youth yoga sessions, to guest lecture at the county employee “Lunch and Learn” series, and to attend monthly Flint Hills Wellness Coalition meetings.

Subject Keywords: Youth Nutrition Education, DIET FREE, Health and Wellness Promotion, Flint Hills Wellness Coalition

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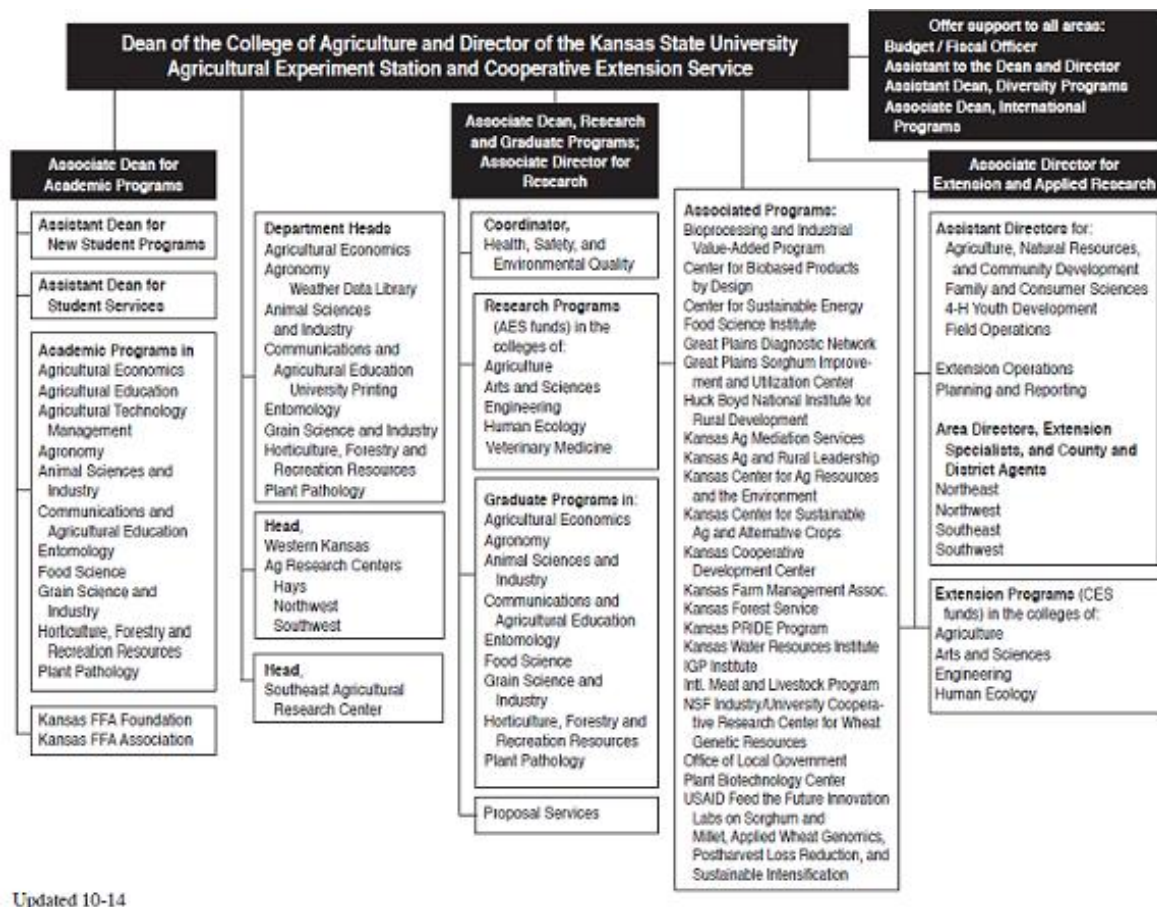
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Introduction

I completed my field experience at the Riley County Research and Extension office located at 110 Courthouse Plaza Manhattan, KS. The Riley County research and extension office is supported by Kansas State University and through their partnership, they work to encourage the adoption of evidence-based information to improve quality of life in Kansas (Kansas State Research and Extension [KSRE], 2015). The Kansas State University Agricultural Experiment Station and Cooperative Extension is part of a national education network established in 1914 with the intended purpose of extending technical expertise and research findings to help people improve their homes, families, farms, businesses, and communities (Riley, 2015a). Each of Kansas's 105 counties has an Extension Cooperative office. The offices are supported by county, state, federal and private funds as well as land-grant universities. The Kansas State University branch of Research and Extension's mission statement, "Dedicated to a safe, sustainable, competitive food and fiber system and to strong, healthy communities, families, and youth through integrated research, analysis and education" is executed through their partnerships with thousands of volunteers, teachers, community leaders, community organizations, and the Kansas State Colleges of : Agriculture, Arts and Sciences, Engineering, Human Ecology, and Veterinary Medicine (KSRE, 2015). The organizational breakdown of K-State Research and Extension can be viewed in Figure 5.1.

Figure 0.1 Organizational Breakdown of K-State Research and Extension (KSRE, 2015)



Learning Objectives

Before starting my field experience at Riley County Research and Extension, I worked with Ginny to develop learning objectives to accomplish throughout my time field experience that would pertain to my degree program and emphasis. My first object was to gain a deeper understanding of the motivations/barriers for adults wanting to make healthy behavior changes. This objective was reached in my DIET FREE classes where barriers to making health behaviors changes were identified and discussed by participants in class. I saw that people who really

wanted to make changes still struggled, even with the extra support of the group. The discussion of how the weekly homework went from the previous week was also enlightening in regard to identifying real life barriers and struggles participants had adapting new health habits into their lives.

The second learning objective was to learn what established social norms, traditions, and environmental factors influence an individual's ability to increase physical activity and improve access to healthy foods. This objective was reached through both my DIET FREE class as well as my youth basketball sessions. On the DIET FREE side, participants identified work policies like work meetings or break rooms that had donuts or cakes that made making health diet choices more difficult. Other participants identified environmental factors such as lack of space to or expense to work out regularly. Since we live in the Midwest and DIET FREE classes were during the winter, many participants said they didn't want to buy a gym membership, but the weather limited their ability to exercise outside. However, Zonya's program included workouts that didn't require extra equipment and could be done in the home. This learning objective was also highlighted at sports nutrition sessions. Here many kids reported not eating before practice, or just eating junk before, during, and after basketball games. The kids helped come up with suggestions to improve their dietary choices, like not drinking soda during games, as well as asking parents to bring healthier snack options to basketball games. Having the kids discuss options to overcome their own dietary barriers was an engaging learning experience for both myself and the athletes.

The third objective: Learn what internal/external rewards adults may need to successfully change health behaviors was achieved during the DIET FREE sessions. During class it was emphasized to stop using food as positive reinforcement for adopting a beneficial health

behavior. An example of this would be to buy yourself a new shirt after exercising daily for a whole week, rather than reward yourself with a piece of cheesecake. I think the share and tell portion before class was also a good opportunity for class participants to be rewarded with praise for successfully accomplishing lifestyle modification behaviors. The group support was beneficial to all those involved for both providing suggestions regarding what worked for them on their homework, as well in providing positive support and encouragement throughout the ten weeks.

The fourth objective was to understand how community partners/organizations work together to impact access to healthy foods and support physical activity. I think this objective was most relevant to the Flint Hills Wellness Coalition meetings I attended. In these sessions I saw representatives from seemingly unrelated groups in the community work together to improve health environments and policies throughout Manhattan. An example was that the food service representative provided her experience with working with vending machine vendors to improve the nutritional quality of products to hospital and K-State representatives in order to help them make similar changes to their work places. I also observed all of these members as well as representatives from Fort Riley and the courthouse working together to design tobacco-free signs to help improve PA environments like parks. This same group also worked together to discuss bike path improvements, and possible strategies to improve nutritional quality at Parks and Recreation baseball concessions.

The last learning objective identified prior to my field experience was to learn about the scope of work of K-State Research & Extension, and this was accomplished throughout the many programs and meetings I was able to attend throughout my Spring semester at Riley

County Research and Extension, as well as through my background research for this report on Research and Extension.

Focus and Scope of the Work

I worked along with another student to design nutrition education sessions for Parks and Rec youth basketball. The sessions were designed to be interactive and engaging, as well as short enough that they would not interrupt too much practice time. The program consisted of three nutrition education sessions that were administered in 15-minute sessions, either before or after team practices, depending on the coach's preference. Ginny also had me jump into being an assistant coach to the DIET FREE healthy lifestyle development program my first week of my field experience. My primary role was to assist in running weekly classes and to be available to answer participants' questions over material covered in that week's class. I also assisted and worked with and other health promotion groups to develop and provide additional health and wellness related programs throughout the community during my time at Kansas State research and Extension.

DIET FREE

DIET FREE is a 10-week community-wide health and wellness promotion program that encourages the adoption of healthful nutrition and physical activity habits into daily life.

Research Extension purchased the DIET FREE health and wellness program and offered the course to the general public, for a fee, to cover course materials. The program was developed by Registered Dietitian and Certified Fitness Instructor, Zonya Foco, who received her bachelor's degree from Eastern Michigan and worked in clinical nutrition for eight years at the Michigan Heart and Vascular Institute at St. Joseph Mercy Hospital. The program consists of a weekly

lecture that focuses on one of the 8 core health habits that create her DIET FREE acronym: 1) drink water, 2) include breakfast and commit to fit, 3) eat often and include a fruit or vegetable every time, 4) tame your sweet tooth, 5) find the fat (learn types of dietary fats), 6) replace processed foods with wholesome, 7) eat until no longer hungry, 8) and exercise every day. Zonya advocates living a diet-free life through coaching support for physical activity, healthy eating, and maintenance strategies.

Each week focused one of the previously listed health habits and the curriculum provided homework to help participants make behavior changes. Examples of homework were tracking screen time, or cutting out processed food from their refrigerator. In addition to Zonya's seminar, I developed and presented an additional interactive demonstrations, lasting about fifteen minutes that would immediately follow the weekly video seminar. The additional presentation was rooted in that week's new health habit and required me to cook something or develop models and handouts to help demonstrate or emphasized the health habit of interest. This class also required me to administer and assess pre- and post-program questionnaires regarding health habits and healthy lifestyle behavior knowledge.

The World Health Organization has reported that 1.4 billion adults aged 20 or more are overweight in the world (World Health Organization [WHO], 2013) and that 38 million deaths globally can be attributed to non-communicable diseases (WHO, 2015). Dietary and physical activity behaviors have been shown to be significant risk factors for non-communicable diseases (WHO, 2015; Wang and Beydoun., 2007), which makes programs like Zonya's appealing to people struggling with chronic disease. The importance of PA and dietary interventions is supported by a systematic review done by Curioni and Lourenco (2005) that found the most successful long-term weight loss programs were those that included both diet and PA

modifications. Although not rigorously evaluated for effectiveness, Zonya's program emphasizes adopting healthful eating behaviors and physical activity habits for weight loss and improving general health and wellness.

The dietary aspects of the program she focuses on are drinking mostly water, reducing added sugar in the diet, and increased consumption of lean protein, fruits and vegetable, and whole grains. The program also provides her cookbook "Lickety Split Meals" which was published by the American Diabetes Association to help program participants reach new dietary goals by cooking more healthful meals at home. Zonya's program also provides a workout video for at-home exercising, led by a certified fitness instructor to help people at all levels make PA a regular part of their day. Her handbook also provides suggestions to help move more throughout the day, like parking your car farther away, using the stairs more often, being more active while doing generally sedentary activities like leg raises while brushing your teeth, or arm circles while watching TV. By offering this program, Riley County is impacting public health by providing health and wellness education. This program received a lot of positive feedback and many of the participants reported enjoying the support group aspect of the program. As a wellness coach, I informally observed a lot of motivation to make healthy lifestyle behavior changes. It also provided me with a better perspective of how support groups can be really beneficial for those trying to make behavior changes. The participants in the class even gave out contact information and discussed making a group Facebook page at the conclusion of the class to continue to support one another with their health goals.

Manhattan Parks and Rec. Youth Basketball Sports Nutrition Education

The second of the major program I worked on was sports nutrition education for Manhattan Parks and Recreation, which I selected based on my interest and previous experience working on health behavior interventions in children. I started my intervention planning process by having an initial meeting with representatives from Parks and Recreation. In the meeting they communicated their need for nutrition education in their youth sport teams, and youth basketball was selected as the intervention group based on which sport was in season during my time at Research and Extension. The health sessions were designed to provide evidence-based material related to optimal athletic performance and health of the athlete. Since the participants of the study were 10-12 years of age, nutrition is of particular importance because the child is still developing and growing (Cotugna, Vickery, & McBee 2005; Meyer, O'Connor, & Shirreffs, 2007). It is important that youth athletes meet increased nutrient demands due to higher energy expenditure from exercise to maintain general health, and optimize growth and athletic performance (Meyer et al., 2007; Petrie, Stover, & Horswill, 2004). Adequate nutrition in child athletes is also essential for preventing injuries such as stress fractures (Petrie et al., 2004). In addition to the youth athletes, this program also had the opportunity to improve coaches' and parents' sports nutrition education since many of the nutrition sessions in this program were held in the presence of the athletes' coaches and parents. Cotugna et al. (2005) found that many athletes and their advisors were misinformed and had misconceptions about nutrition knowledge. Improving this gap in knowledge could have implications for improving athlete health and performance. Another major goal of the sports nutrition education sessions was to teach the importance for proper hydration in regard to athletic performance and athlete health. Even dehydration levels of as little as 2% can have negative impacts on heart rate, temperature

regulation, and heart or lung function, which can all impact athletic performance (Rosenkranz, 2014b). Children are also especially susceptible to thermoregulatory problems due to their increase surface area to weight ratio causing them to absorb heat from the environment more efficiently, as well as lower sweat rates limiting their cooling abilities (Meyers et al., 2007).

Additional Projects

In addition to these two projects I attended three “Lunch and Learn Sessions,” held City Hall in Manhattan, KS. These sessions were held to provide city employees with health and wellness promoting knowledge. I presented on lifetime fitness and chronic disease prevention at one of these sessions, as well as led a PA stretching routine for 20 minutes after the lunch. I also developed and distributed an exercise sheet with descriptions of the exercises I lead after lecture. I also accompanied Ginny and participated at weekly after school yoga sessions during February and March at Theodore Roosevelt Elementary School. I also was exposed to committee procedures during my time at Flint Hills Wellness Coalition meetings. The Flint Wellness Coalition is a community health promotion group, whose vision statement is “to create a healthier community for our residents through policy, system, environmental, and personal change (Riley County, 2015a).” At these meetings, I observed and took part in the meeting discussions regarding planning, implementing, and assessing health and wellness initiatives and policies in the community.

Activities Performed

DIET FREE

I was required to attend the 10 weekly two hour sessions. My primary role was to assist Ginny in teaching the weekly class, but my first task each week was to set up the class’s snacks,

beverages, and set up weekly handouts and class activities. I then started the class by having participants discuss their previous week's homework and share their successes and challenges in adapting the previous week's health habit into their daily routine. During this time I answered any questions the program participants had regarding class material and provided feedback on their homework.

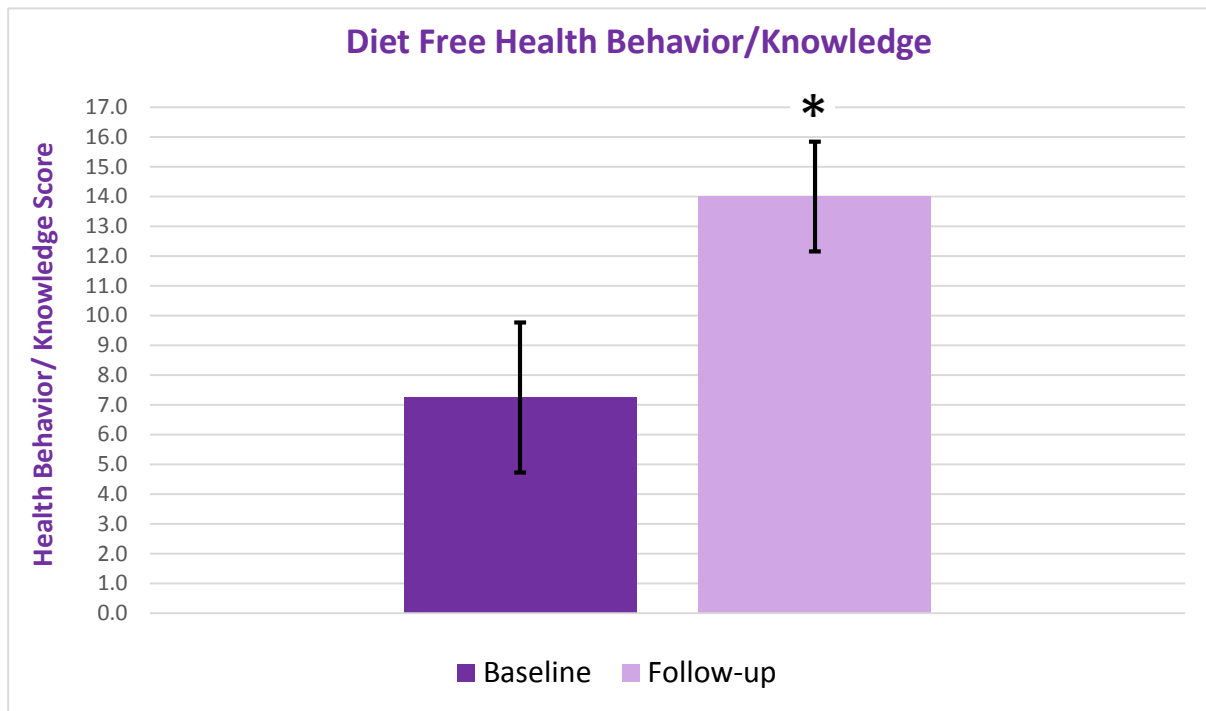
After the first session which was utilized to introduce the program and handout course materials (DIET FREE lifestyle guide and habit tracker, Lickety-Split Meals Cookbook, Water for Lemons health habit adoption novel, Everyday Fitness: movement training DVD, DIET FREE audio tape, the 10 DIET FREE online video seminars, and the DIET FREE tote bag and wristband reminder). After the initial discussion, I helped lead the group through the video seminar and paused to allow participants time to jot down notes, ask questions, and participate in interactive parts of Zonya's seminar. After the 20-30 video portion, we again discussed any further questions and went over the week's homework assignment.

For the last 15 minutes of the class, I led the group through an interactive additional activity. We developed and presented an additional activity that related to the health habit of emphasis in that particular class. Some of the extra class activities I developed were: presentations and examples of healthier alternatives, the presentation of healthy meal and snack options from Zonya's Lickety-Split meal Cookbook, as well as providing interactive games for program participants. The games featured The Price is Right style games that incorporated topics in class such as serving size versus portion size and glycemic index versus glycemic load portions. We also had them put "price tags" on their guess for how many grams of sugar were in popular sugar-sweetened beverage options and so-called healthy grocery store food selections. I

also helped present on the difference between emotional and physical hunger, and administered questionnaires to help identify binge eating behaviors in participants.

I was also in charge of administering, collecting, and analyzing the pre- and post-program questionnaires. Of the 20 participants who registered for the program, about 13-15 were in attendance regularly on Thursday night sessions. However, out of the 20 participants who filled out the initial self-assessment questionnaires, only 8 filled out and handed in post assessment forms. Low participation in the last session may have been due to the last session just being a social event to share experience and healthy recipes. For statistical analysis, paired t-test (significance was set at $p < 0.05$) were run to assess differences pre- and post-program participation. The results showed that there was a statistically significant improvement in nutrition knowledge from baseline to post-intervention ($t = 6.67$, $df = 7$, $p < 0.001$). Every participant had a higher health knowledge and behavior score post- DIET FREE. Although this was a significant change pre- to post-intervention, the strength of the conclusions that can be from the result are limited due to the lack of using an evidence-based, validated assessment tool and due to the lack of a comparison group.

Figure 0.1 Diet Free Mean Health Behavior/Knowledge



Higher scores indicate better health behavior/knowledge in participants

Error bars indicate 95% CI

***Statistically significant difference between baseline and follow-up health behavior/knowledge scores ($p < 0.05$)**

Parks and Recreation Sports Nutrition Education

My first task after deciding to implement a youth basketball sports nutrition program, was to recruit teams and coaches to participate in the program. A fellow student and I then designed flyers to recruit coaches and emailed across the Parks and Recreation Coaches' list serve. Flyers were designed promoting a multiple session sports nutrition education opportunity that would provide information for healthier athletes and better athletic performance. Scheduling of teams for their first session began the following week.

Each session had a sports nutrition related theme, and we were responsible for designing handouts using evidence-based materials relevant to that session's topic. Materials from Iowa State Outreach department (Litchfield, Westberg, & Metcalf, 2012; Litchfield, Westberg, & Lasley, 2012) as well as material from K-State Nutrition and Exercise lectures (Rosenkranz 2014a, 2014b) were used in the development of all the session handouts. These handouts can be found in figures 5.5-5.7. All the flyers provided simple easy to follow recommendations for optimal sports nutrition as well as food and beverage suggestions at different phases of athletic participation and preparation. Through each session we lead the team through the session handout, allowed them to ask questions and then we quizzed them on what they learned through games. The last few minutes of the session were designated for distributing the snack that was relevant to that session's recommendations e.g., chocolate milk and oranges.

We were also responsible for designing a questionnaire to assess the coaches and youth basketball athletes. The coaches' questionnaire asked questions regarding their own nutrition knowledge as well about their perception of the importance and need for sports nutrition education. It also acquired some demographic information about the coaches and their previous coaching experience. The student athlete questionnaires were designed to assess nutrition knowledge and were administered pre- and post-intervention.

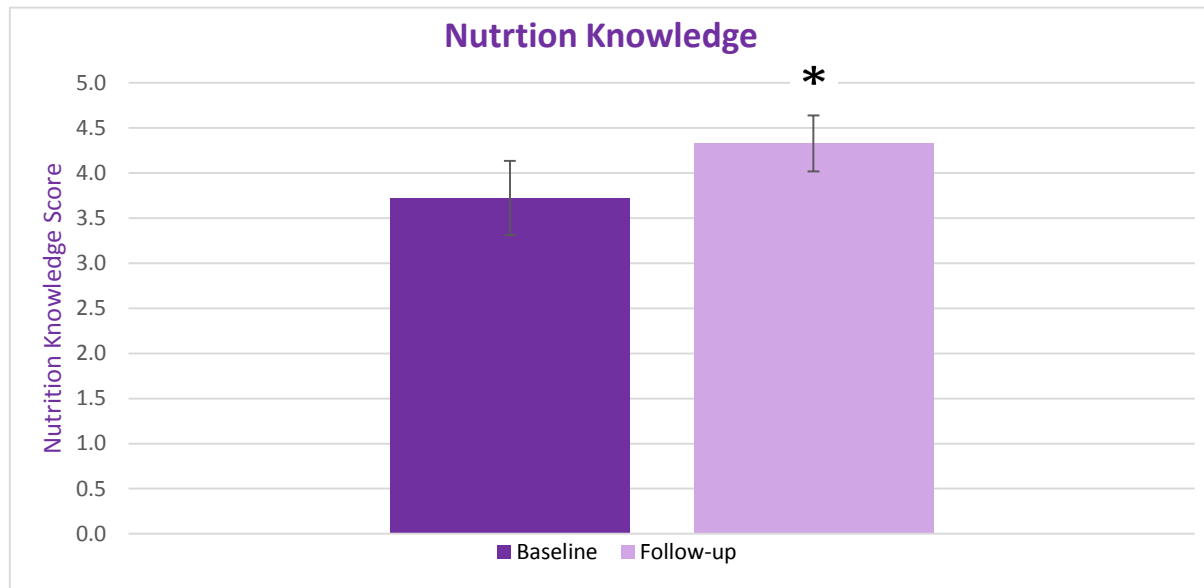
Coaches Questionnaires

A total of 8 coaches filled out the pre-education session coaching questionnaires. The mean age of the coaches was 37.3y (SD = 12.4), all were classified as Caucasian, and all but two were male. Seven of the 8 coaches had previous coaching experience and all but one of the coaches went through the National Youth Sport Coaching Association Training provided through Manhattan Parks and Recreation. Most of the coaches had no formal nutrition education, with two reporting education from a dietitian or health professional and one reporting nutrition education from a university. The surveys also provided an opportunity for coaches to report what information they wanted to know, or would be most beneficial for their athletes to learn. The coaches wanted to know more about beneficial pre- and post-game snacks, proper hydration information, and nutrition for concentration and endurance in their athletes.

Athlete Questionnaires

Of the 6 teams that started the intervention, only 3 teams completed all of the three nutrition education sessions. Reasons for drop-out were primarily due to scheduling problems due to coaches canceling practice for illness or inclement weather (i.e., snow). However, one team just didn't follow up, and stopped responding to emails regarding future sessions. For one team of seven boys, the average age was 11.6 yrs. (SD = 0.8 years); one team of six girls mean age was 10.8 (SD = 1.0 years) and for another team of 6 girls the mean age was 10.5 (SD = 0.9 years). A paired t-test was run to assess the difference in nutrition knowledge from baseline to follow up (significance was set at $p < 0.05$). There was a significant improvement from baseline to post intervention ($t = -4.652$, $df = 18$, $p < 0.001$). Results are displayed in Figure 5.3.

Figure 0.2 Youth Basketball Mean Nutrition Knowledge Score



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)**

Other Programs

As mentioned above, I also attended monthly Flint Hills Wellness Coalition meetings. At the meetings I was also required to present updates on the progress of the of the Parks and Recreation youth basketball sports nutrition education program, as well as provide an assessment of how successful I thought the program was, following its conclusion. I also took part in discussions regarding implanting policy change to offer more nutritious food selections at Parks and Recreation baseball concessions. In addition to attending Coalition meetings, I also took part in Manhattan city employees' "Lunch and Learn" health and wellness promotion seminars, as well as weekly youth yoga sessions at Theodore Roosevelt Elementary School. At one of the four "Lunch and Learn" programs I was required to lead the lecture for the day. I prepared a 25-minute seminar on lifetime fitness and chronic disease prevention using evidence- based materials. After the presentation, I distributed handouts that I made with key points and lifestyle recommendations, based on the populations throughout the world that have the longest lifespan and highest quality of life. Following my seminar, I led the group through exercises that could be used for a warm-up and cool-down routine for physical activity. I then distributed the flyers I developed, that had the list of exercises performed in the session, as well as a description of how to perform them properly.

Products Developed

For the DIET FREE program, I developed handouts for static and dynamic stretching routines that explained their importance, as well as gave instruction on how to accurately perform the stretches to reap the most benefit and prevent injury. I used similar handouts for the exercise session I led after the "Lunch and Learn" session where I presented. I also developed several handouts throughout the DIET FREE program that provided resources pertinent to DIET

FREE habits, as well as recipes for food I prepared for class, and outlets for physical activity such as a community race schedule throughout the spring.

For the youth basketball sports nutrition program, I initially helped to design flyers to help recruit teams to participate in our program (Figure 5.4). While developing the flyers, I learned the importance of providing simple straightforward information in a visually appealing format. I also learned how important clarity is, since there was some confusion from a coach about the duration of our program based on the information provided on the flyer. Overall, the flyer was a good form of promotion in order to quickly spread recruitment information over the coach list server. I also had to develop handouts for the athletes to take home for each nutrition education session. I used similar techniques in their design and in providing age appropriate simple information for the athletes and their parents regarding sports nutrition. I utilized materials developed by the “eat to Compete” program out of the Iowa State University Extension Outreach office (Litchfield, Westberg, & Metcalf, 2012; Litchfield, Westberg, & Lasley, 2012), as well as lecture materials (Rosenkranz, 2014a, 2014b) to provide nutrition information regarding improving health and athletic performance through improved nutritional practice. The three flyers developed for sports nutrition education sessions are shown in Figures 5.5–5.7.

Figure 0.1 Youth Basketball Sports Nutrition Recruitment Flyer



SPORTS NUTRITION FOR OPTIMAL ATHLETIC PERFORMANCE

If you and your team are willing to participate, contact either Natalie or Natasha to get more information and set a practice for a session



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**10-15 minute
session at practice**

Discussion Topics:

- Importance of Proper Hydration
- Fueling for Practice and Competition
- Significance of Protein and Carbohydrate Consumption for Athletic Performance and Recovery

Activities:

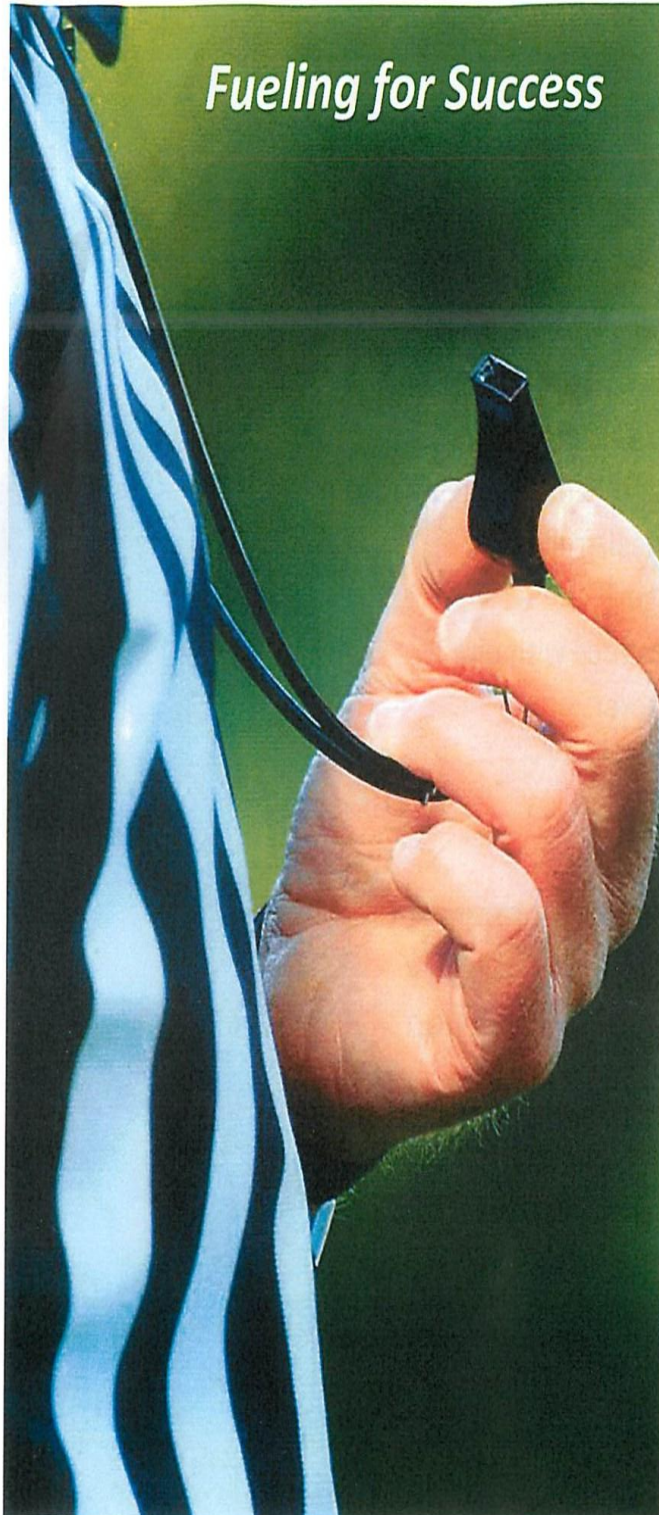
- Prepare Healthy Snacks for Athletes
- Play Games and Activities

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Figure 0.2 Youth Basketball Nutrition Session 1: Pre-Competition and Practice



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.

≥ 3-4 hours pregame

Pregame/practice snack

meal ideas:

- Low-fat sandwiches with whole grain bread/rolls
- Beans (black, pinto, kidney, garbanzo)
- Lean meat (turkey, chicken, pork) or fish
- Baked potatoes with veggies and cheese
- Pasta (preferably whole grain)
- Rice (preferably whole grain)
- Hummus or peanut butter with whole grain bread
- Fruits, vegetables, salads

ideas:

- Sports drinks
- Fruit
- Cereal
- Granola or bar
- Half of wheat bagel with jam
- Cereal/fruit bar
- Yogurt
- Hummus with pita
- Crackers
- Pretzels



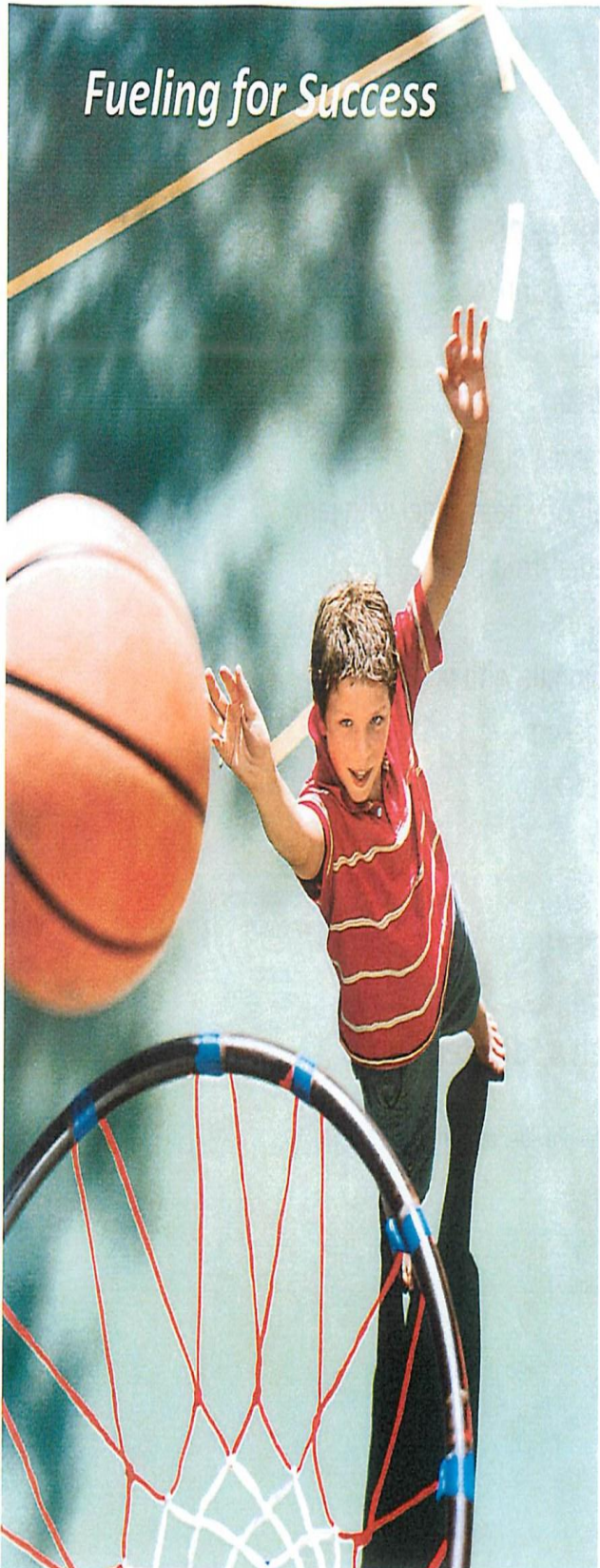
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Figure 0.3 Youth Basketball Nutrition Session 2: Post Competition and Practice



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



≥ 3-4 hours post-practice postgame/practice snack

meal ideas:

- Low-fat sandwiches with whole grain bread/rolls
- Beans (black, pinto, kidney, garbanzo)
- Lean meat (turkey, chicken, pork) or fish
- Baked potatoes with veggies and cheese
- Pasta (preferably whole grain)
- Rice (preferably whole grain)
- Hummus or peanut butter with whole grain bread
- Fruits, vegetables, salads

ideas:

- Sports drinks
- Fruit
- Cereal
- Granola or bar
- Half of wheat bagel with jam
- Cereal/fruit bar
- Yogurt
- Hummus with pita
- Crackers
- Pretzels



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Figure 0.4 Youth Basketball Nutrition Session 3: Hydration



Estimate sweat rate:

1. weight before training – weight after training = total weight loss
2. fluid consumed during exercise (15oz=1 lb)
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

Before Practice/Game:

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

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

During Practice:

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

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

After Practice:

- Immediately afterwards, replace fluids lost during exercise
- For every pound lost during exercise consume 24 oz

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 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
 - o An 8oz serving will adequately replace ions lost during a 1 hour game or practice



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Alignment with Public Health Core Competencies

Throughout the extent of my field experience at Riley County Research and Extension and thesis research, I applied all of the core competencies of Public health. Biostatistics, the first core competency, was used in my analyses for both my extension program's data, and my thesis research data. I learned a lot from my biostatistics class and thesis data analyses, which helped me understand when to use different types of measurement tools, as well as understand what statistical tests to use on the appropriate data. With the knowledge I gained from those two experiences, I was able to design and adapt questionnaires to assess Manhattan Parks and Rec youth basketball nutrition education sessions from my physical activity and nutrition research experience as part of my K-State public health education. I analyzed participant questionnaires that assessed health behavior and knowledge change pre- to post-program participation. Although the questionnaires were not a validated tool, they were useful in providing some measure of how health behavior and knowledge scores changed over the course of the program for each individual and for the group as a whole. I also used the survey method to assess youth basketball nutrition knowledge of youth basketball athletes and coaches prior to nutrition education and post nutrition education sessions.

The second core competency, environmental health, was of particular significance in my health promotion presentation regarding lifetime fitness and chronic disease prevention. In the seminar we talked about the importance of assessing, preventing and controlling environmental hazards that pose risk to employees and community members. The importance of creating policies and guidelines in the work place and throughout the community to encourage the most healthful outcomes was also highlighted in the presentation. Another portion of my field experience that environmental health was a key, was in the Flint Hills Wellness Coalition meetings I attended. Two reoccurring topics in the meetings were measures to take in order to make Manhattan public areas tobacco free, and ways improve Manhattan's walkability. The bicycle advising committee is working to make the environment safer for community members to walk and bike to work, school, and shopping centers. Improving the safety of the trail and sidewalk network has the potential to allow citizens to make healthier commuting and exercise choices, in addition to preventing pedestrian injuries. The tobacco free initiative is trying to encourage eliminating tobacco use in parks and has funding to post signs in public places to identify the area as a tobacco free zones. The importance of reducing health risk due to in environmental conditions was apparent throughout my field experience.

Epidemiology, the third core competency was an integral part of my background research for both my field experience and thesis. Epidemiological literature was useful in helping identify public health risk factors and for identifying potential strategies to improve upon health behaviors for a public health impact in the community. I also used the epidemiological ethical and legal principles for data collection and analysis. Previous epidemiological literature helped me design an ethical study procedure that would allow me to investigate public health questions regarding physical activity and nutrition because of their potential for improving health

outcomes. Epidemiological literature also helped me design questionnaires to appropriately assess a public health question, in my case it was in regard to nutrition and physical activity and how they affect participants' health. My epidemiological education and research also helped me identify and understand the limitations and biases in my field experience and thesis data that limited the magnitude of the conclusions I could make from my results.

Health care administration, the fourth core competency was a pertinent in my time at the Research and Extension office. I was able to take part in and observe discussions in Flint Hills Wellness Coalition meetings regarding the policy processes for improving the health status of populations. I was able to see how healthcare organizations, in this case, the town hospital representatives could promote policies and provide services that impact the community's public health. An example of this would be discussing how to improve the cafeteria meals, vending options, beverage availability in health care establishments. I was able to observe and learn about all the steps that go into implementing a new health promotion policy: writing a proposal, getting administration approval, and working with other community organizations and vendors to implement a new policy. The policies and services that health care providers enact, play a large role in health promotion, disease prevention, and treatment in a community. However, in my time at Research and Extension, I came to understand that while healthcare professionals play an integral part in improving and maintaining public health in a community, many other organizations, employees, businesses, and individuals have to work together to provide access to high quality cost-effective healthcare services necessary for high quality health care. I also was able to see first-hand how health promotion programs offered by Riley County play a role in community health education through health behavior coaching, information seminars, and youth PA sessions.

The last of the 5 public health core competencies is social and behavioral sciences, which identifies and investigates the social and behavioral factors that influence population and individual health. I used literature from social and behavior sciences in both my thesis research and field experience throughout the whole process of designing interventions. I identified at-risk populations for a negative health risk or outcome, the needs in these populations, and then measures that could be taken to improve upon these health outcomes and risk. In my thesis research and nutrition education portion of my field experience I used evidence-based approaches to intervene in nutrition and PA health behaviors that could potentially improve desired health outcomes in participants. Through education opportunities in my field experience, I was also able to help people identify health risk in their own lives, and then provide opportunities and resources to help reduce or improve upon these risks. Social and behavioral sciences was especially integral in the DIET FREE class, where we provided recipes and samples, went through PA routines, and provided strategies for improving upon health behaviors in the participants' daily lives. This competency was important throughout the extent of my time at Research and Extension as well as during my thesis research, because understanding the social and behavioral influences on health helped me to design and implement all of the public health programs as well influence my use of the other four competencies.

Conclusions

I consider my public health education as both an extremely valuable and enlightening experience. I was exposed to numerous opportunities that allowed me to grow and develop as a researcher and public health promoter, and I am motivated to continue working to better understand factors to improve health outcomes in all people. I think a major benefit I gained from the program was a better understanding of research methods, especially the importance of

using evidence-based methods in health behavior interventions, as well as program and policy implementation. After going through the public health program, I now view health and wellness as a much larger picture than just individual health outcomes and behaviors. Through the program I also gained a frame of reference for the complexity involved in making a public health gains, and was able see how much effort and work goes into making even seemingly small health and wellness improvements. Although I certainly still have more to learn, the people who mentored, advised, and educated me during my time at K-State provided me with strong public health background, and I am confident that that the skills, knowledge and experience I gained through my program will continue to help me in my pursuit of becoming a valuable health professional.

References

- Cotugna, N., Vickery, C. E., & McBee, S. (2005). Sports nutrition for young athletes. *The Journal of School Nursing*, 21(6), 323-328.
- Curioni, C. C., & Lourenco, P. M. (2005). Long-term weight loss after diet and exercise: a systematic review. *International Journal of Obesity*, 29(10), 1168-1174. Iowa State Research and Outreach (2015).
- Litchfield, R. E., Westberg, K., & Metcalf, L. (2012). Eat to Compete: What You Should Know About Fluids... Retrieved June 18, 2015, from www.extension.iastate.edu/humansciences/sports-nutrition
- Litchfield, R. E., Westberg, K., & Lasley, E. (2012). Eat to Compete: What You Should Know About Training Diets. Retrieved June 18, 2015, from www.extension.iastate.edu/humansciences/sports-nutrition
- Kansas State Research and Extension (KSRE) (2015). Kansas State. Retrieved July 23, 2015, from www.ksre.ksu.edu.
- Meyer, F., O'Connor, H., & Shirreffs, S. M. (2007). Nutrition for the young athlete. *Journal of sports sciences*, 25(S1), S73-S82.
- Petrie, H. J., Stover, E. A., & Horswill, C. A. (2004). Nutritional concerns for the child and adolescent competitor. *Nutrition*, 20(7), 620-631.
- Riley County: Research and Extension (2015). Riley County. Retrieved July 17, 2015, from www.riley.ksu.edu
- Riley County: Community Health Promotion & Wellness (2015). Riley County. Retrieved July 24, 2015, from www.rileycountyks.gov
- Rosenkranz, S. (2014)a. Lecture 4: Athlete guidelines and nutrition periodization. Retrieved February 2, 2015, from Kansas State University Exercise and Nutrition HN635/KIN635.
- Rosenkranz, S. (2014)b. Lecture 5: Hydration. Retrieved February 2, 2015, from Kansas State University Exercise and Nutrition HN635/KIN635.
- Wang, Y., & Beydoun, M. A. (2007). The obesity epidemic in the United States—gender, age, socioeconomic, racial/ethnic, and geographic characteristics: a systematic review and meta-regression analysis. *Epidemiologic Reviews*, 29(1), 6-28.
- WHO. (2013). Obesity and Overweight. Geneva: World Health Organization Retrieved June 13, 2015, from <http://www.who.int/mediacentre/factsheets/fs311/en/>.
- WHO. (2015). No communicable Diseases: Fact Sheet. World Health Organization. Retried July 12, 2015, from <http://www.who.int/mediacentre/factsheets/fs355/en/>.

Appendix A - Youth Basketball Questionnaires

Figure 0.1 Youth Basketball Child Questionnaire

Name _____ Team _____

Age _____ Gender M / F Date _____

1. How often do you usually do the following?

Tick one box in each row

	Never/rarely OR Less than once/week	About 1-3 times/week	About 4-6 times/week	Every day
	1	2	3	4
a. Drink water	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Drink fruit juice or fruit juice drink	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Drink soda (not including diet soda)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Carry a water bottle	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Eat chocolate or candy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. French fries	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. Eat potato chips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Eat fast food	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
i. Help choose or buy groceries for the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
j. Help prepare your dinner	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
k. Eat dinner with most of the family	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
l. Eat dinner in front of the television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
m. Eat snacks in front of the television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. How many serves of vegetables do you usually eat each day?
[1 serving = 1 cup of salad vegetables, OR $\frac{1}{2}$ 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 5 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 ("Cutie") or apricots, OR 1 cup of dried pieces]

- ☐ I don't eat vegetables
- ☐ Less than 1 serve a day
- ☐ 1-2 serves a day
- ☐ 3-5 serves a day
- ☐ More than 5 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 you athletic performance?(Select one)

Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

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

Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

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

Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

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

Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

Figure 0.2 Youth Basketball Coach Questionnaire

Youth Coaching Survey

INSTRUCTIONS: Please read all the questions carefully.
 Name/Team _____

1. What is your age? _____ years

2. I describe myself as: (Select one)

Male	<input type="radio"/>
Female	<input type="radio"/>

3. I describe myself as: (Select one)

Coach	<input type="radio"/>
Assistant Coach	<input type="radio"/>
Other	<input type="radio"/>

4. I describe myself as: (Select one or more)

Hispanic or Latino	<input type="radio"/>
American Indian or Alaska Native	<input type="radio"/>
Asian	<input type="radio"/>
Black or African American	<input type="radio"/>
Native Hawaiian or Other Pacific Islander	<input type="radio"/>
White	<input type="radio"/>
Don't know/not sure	<input type="radio"/>
Prefer to not answer	<input type="radio"/>

5. Highest level of education completed: (Select one)

Less than high school	<input type="radio"/>
High school	<input type="radio"/>
Some college or associates degree	<input type="radio"/>
Graduated college	<input type="radio"/>
Master's degree or above	<input type="radio"/>
Prefer to not answer	<input type="radio"/>

6. Do you have any previous experience coaching?(Select one or more)

Coached basketball at least once before	<input type="radio"/>
Coached for a competitive, non-school program at least once before (e.g., Club teams)	<input type="radio"/>
Coached for a school program at least once before	<input type="radio"/>
Coached for a recreational, non-school program at least once before (e.g., Parks and Recreation)	<input type="radio"/>
No previous experience	<input type="radio"/>

7. Do you have any coaching-specific training? (Select one or more for each)

Participant ID # _____

Degree related to coaching (Physical Education, Exercise Science, Kinesiology, etc.)	<input type="radio"/>
Coaching certification(s)	<input type="radio"/>
Coaching workshop(s)	<input type="radio"/>
National Youth Sport Coaching Association training (provided through Manhattan Parks and Recreation)	<input type="radio"/>
No coaching-specific training	<input type="radio"/>

8. Do you have any past experience in sport? (Select one or more)

Participation in organized basketball	<input type="radio"/>
Participation in competitive organized sport (School affiliated, club teams, etc.)	<input type="radio"/>
Participation in recreational organized sport (city leagues, company leagues, intramurals, etc.)	<input type="radio"/>
Participation in unorganized sport (pick-up games, etc.)	<input type="radio"/>
No past participation	<input type="radio"/>

9. What is your primary reason for being a youth sport coach? (Select one)

My own child(ren) enrolled in the program	<input type="radio"/>
Volunteer experience	<input type="radio"/>
Enjoyment of coaching	<input type="radio"/>
Asked to volunteer	<input type="radio"/>
Don't know/not sure	<input type="radio"/>
Prefer to not answer	<input type="radio"/>

10. I have had previous formal nutrition education..... (Select one)

From a Dietician/Health Professional	<input type="radio"/>
During a Clinic/Conference/Workshop	<input type="radio"/>
From a University	<input type="radio"/>
I've never had formal nutrition education	<input type="radio"/>
Other(specify) _____	<input type="radio"/>

11. How confident are you in your sports nutrition knowledge? (Select one)

Not confident at all	<input type="radio"/>
Not very confident	<input type="radio"/>
Somewhat confident	<input type="radio"/>
Confident	<input type="radio"/>
Very confident	<input type="radio"/>
Completely confident	<input type="radio"/>

Participant ID # _____

12. How confident are you in your health-oriented nutrition knowledge? (Select one)	
Not confident at all	<input type="radio"/>
Not very confident	<input type="radio"/>
Somewhat confident	<input type="radio"/>
Confident	<input type="radio"/>
Very confident	<input type="radio"/>
Completely confident	<input type="radio"/>

13. How beneficial do you think teaching your athletes about nutrition for better performance would be? (Select one)	
Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

14. How beneficial do you think teaching your athletes about nutrition for better health would be? (Select one)	
Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

15. How beneficial do you think teaching your athletes about avoiding injury would be? (Select one)	
Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

16. How beneficial do you think teaching your athletes about home-based fitness programs would be? (Select one)	
Not beneficial at all	<input type="radio"/>
Not very beneficial	<input type="radio"/>
Somewhat beneficial	<input type="radio"/>
Beneficial	<input type="radio"/>
Very beneficial	<input type="radio"/>
Completely beneficial	<input type="radio"/>

Participant ID #: _____

17. What information about nutrition would you like to know? (hydration, snacks, pre/post workout, etc.)

18. What aspects of nutrition and health could be improved at practices and games?

19. Any other comments on these topics?

Participant ID # _____