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Livin' Right! Morning, Noon, and Night: A Multi-Disciplinary Wellness Camp [for] Children with Obesity Issues

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Livin'Right! Morning, Noon, and Night:

A multi-disciplinary wellness camp to children with obesity issues

by

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A Scholarly Project

Submitted to the Occupational Therapy Department

of the

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This Scholarly Project Paper, submitted by Lynne Bradbury, OTR/L in partial fulfillment of the requirement for the Degree of Master's of Occupational Therapy from the University of North Dakota, has been read by the Faculty Advisor under whom the work has been done and hereby approved.


Faculty Advisor

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 A multi-disciplinary wellness camp for children with obesity issues

Department Occupational Therapy

Degree Master's of Occupational Therapy

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ABSTRACT

The prevalence of childhood obesity is rapidly increasing in the United States and the percentage of overweight or obese children in South Dakota exceeds the objective set by the U.S. Department of Health and Human Services (2000). An extensive review of literature was completed on the prevalence and characteristics of obesity in children as well as interventions such as a multi-disciplinary team approach and family involvement. A review of the use of measurement tools both for screening and outcome measures was also conducted. There are significant health and societal impacts that accompany the increasing prevalence of obesity in our communities. One of the challenges in addressing obesity is developing approaches that will aid the child and their family in implementing a lifestyle change in their daily lives. A summer camp based in the child's community provides a fun and accessible avenue to explore healthy food choices and choose active leisure options. A multi-disciplinary team comprised of pediatric allied health professionals offers knowledge and experience with assessing the needs of the child and family, applying technical knowledge of nutrition and fitness, and creating an environment for change. Many of the decisions surrounding a child's food and fitness choices are strongly impacted and limited by their environment. Shaping a camp environment that represents the camper's daily lives will give them an opportunity to adapt to the challenges presented as they apply healthy living in their homes, schools, and communities. The product developed for this project is a handbook that serves as a comprehensive resource for implementing a wellness camp for children with obesity. The

handbook was designed to be an easy to use resource for multi-disciplinary teams of healthcare professionals to use in their communities. The multi-faceted curriculum included in the handbook takes a fun, community based approach to making healthy food choices and choosing active leisure options. The handbook provides detailed descriptions of the structure of the camp, staff roles, goals of the camp, and adaptations for different populations. The handbook is divided into six sections. Each section contains all the information and forms needed to run each one of the four hour camp sessions. At the back of the handbook there are survey forms designed to be completed by campers and parents at the conclusion of the camp.

CHAPTER I

INTRODUCTION

I have been interested in helping children and families reach their full potential through my work as an occupational therapist in a pediatric setting for the last ten years. My specific interest in addressing the wellness concerns of children who struggle with obesity began two years ago. The facility at which I work, Children's Care Hospital and School in Sioux Falls, South Dakota, identified a need and an interest in offering a wellness camp to children with obesity issues and their families. My involvement in the program planning for the wellness camp led me to further review of the issue of obesity and the role of allied health professionals in creating an environment for wellness.

The prevalence of childhood obesity is rapidly increasing in the United States and the percentage of overweight or obese children in South Dakota exceeds the objective set by the U.S. Department of Health and Human Services (2000). There are significant health and societal impacts that accompany the increasing prevalence of obesity in our communities. One of the challenges in addressing obesity is developing approaches that will aid the child and their family in implementing a lifestyle change in their daily lives. A summer camp based in the child's community provides a fun and accessible avenue to explore healthy food choices and choose active leisure options. A multi-disciplinary team comprised of pediatric allied health professionals offers knowledge and experience with assessing the needs of the child and family, applying technical knowledge of nutrition and fitness, and creating an environment for change. Many of the decisions surrounding a

child's food and fitness choices are strongly impacted and limited by their environment. Shaping a camp environment that represents the camper's daily lives will give them an opportunity to adapt to the challenges presented as they apply healthy living in their homes, schools, and communities.

The primary role of the occupational therapist in a wellness camp for children who struggle with obesity is that of creating an environment of change. This occurs through program planning with regard to utilizing community resources and developing the structure of the camp. During the camp, the occupational therapist works with the campers to provide information and skills to aid them in their daily decision making. Throughout the camp, there will also be contact with the parents to provide techniques for shaping an environment at home that encourages opportunities for leading an active and nutritious lifestyle.

The Occupational Adaptation theory by Schultz and Schkade (Schultz, 2005) was used to guide the development of this scholarly project. According to Schultz, the key construct of Occupational Adaptation is that "all therapy is directed at improving the person's adaptiveness" (p.8). Whereas, the basic assumption of most theories is "if we help the patient become more functional, he will adapt" (p. 3); the basic assumption of Occupational Adaptation is "if we help the patient to become more adaptive, he will be able to function" (p. 19). The structure of the wellness camp applies the concepts of the Occupational Adaptation theory in that the therapist is an "agent of the environment" (Schultz, p. 15) and the patient (in this case, the camper) is seen as the "agent of change". This is evident in the product as the therapist creates the environment through the programming, wearing clothes that represent a specific time of day, and the community

based setting. The camper's role is to actively participate in the camp, learn new skills, and apply the new knowledge to their daily lives.

One of the constants of the Occupational Adaptation theory is that the desire for mastery is innate. The fact that this is a constant in the theory provides an impetus to look for the potential in an individual and in oneself (Schultz, 2005). It is particularly helpful to apply this theory to the campers attending the *Living Right! Morning, Noon, and Night: Wellness Camp for Kids*. They may be perceived by society and their families to be lazy and that they do not care about how they look. Providing the campers with an opportunity to explore a variety of active leisure options and healthy foods in a safe setting increases the likelihood of the camper tapping into their own desire for mastery.

Children who struggle with obesity need to adapt many of their habits, environments, and relationships to successfully implement healthy lifestyle changes. With the camp staff comprised of allied health professionals creating the environment for change, the camper's role is to adapt to the new environment of healthy living by developing new skills and knowledge.

The scholarly project is divided into five chapters; the information included in this chapter provides an overview of the problem and the intended outcome of the project. The second chapter is a review of current research and literature that formed the foundational basis for the product. Chapter III is an overview of the methodology used to develop the product and the product is presented in its entirety in Chapter IV. The final chapter provides a summary of the entire project, limitations of this project, recommendations for further development of the project, and options for additional research in this area.

CHAPTER II

REVIEW OF LITERATURE

Introduction

According to the literature in the following section of this chapter, the prevalence of childhood obesity is rapidly increasing in the United States and the percentage of overweight or obese children in South Dakota exceeds the objective set by the U.S. Department of Health and Human Services (2000). The purpose of this scholarly project is the development of a handbook designed for healthcare professionals to implement wellness camps for children with obesity in their own communities.

This type of project needs to have its basis in current literature and research; this chapter contains a review of the literature and research that provided a foundation for the development of the curriculum for the wellness camp for children with obesity issues. The first section of this chapter contains a review of the literature and research pertaining to the prevalence and characteristics of obesity in children and adolescents. Next, interventions to address childhood obesity will be explored including multi-disciplinary teams, family involvement, and the programmatic implementation of the interventions. A review of the use of measurement tools both for screening and outcome measures is also included.

Prevalence of Obesity in Children

United States

Childhood obesity in the United States has reached epidemic levels (Wylie, 2005; Koplan, Liverman, & Kraak, 2005). Since 1963, the rate of childhood obesity has accelerated. The data for *Healthy People 2010* (U.S. Department of Health and Human Services, 2000) indicated that children and adolescents aged 6-19 showed an increase in the rate of overweight and obesity from 11 percent in 1988-94 to 16 percent in 1999-2002. According to Wylie (2005), the prevalence of obesity is noted in all racial groups; however, obesity rates are greater among Hispanics and African Americans.

South Dakota

The data provided in the *School Height and Weight Report: For South Dakota Students 2004-2005 School Year* (South Dakota Department of Health, 2006) outlined the prevalence of childhood obesity within a variety of demographic categories. These categories included age, gender, race, and geographic location. The total number of South Dakota students that fit the overweight category was 16.6 percent and 16.4 percent fit the obese category. The numbers were slightly lower in the Sioux Falls region with 15.7 percent of school age students in the overweight category and 13.4 percent in the obese category. The age groupings of 9-11 and 12-14 have higher percentages than the other age categories. The numbers statewide showed that students who are American Indian comprised the largest percentage of students who are overweight and obese.

The percentage of children in the overweight or obese categories in South Dakota significantly exceeds the objective set in the U.S. Department of Health and Human Services (2000) document *Healthy People 2010*. The objective states that the number of

school age students (aged 5-19) who are overweight or obese will decrease to 5 percent by the year 2010.

Characteristics of Obesity in Children

Risk Factors

In order to effectively address the issue of childhood obesity it is necessary to have an understanding of the risk factors affecting children. The risk factors combine to impact energy imbalance, the general underlying cause of obesity. The imbalance occurs when the amount of calories consumed exceeds the amount of energy expended. There are multiple contributing risk factors to obesity including diet, inactivity, genetics, medical variables, and social factors.

Dietary factors include the quantity and type of food as well as how the food is consumed. A review of literature by Wylie (2005) found that although an increase in caloric intake is usually thought to be the root cause of obesity, there has been limited supportive data in this area. The average caloric intake by children between 1970 and 2000 did not significantly change according to the National Health and Nutrition Examination Surveys (Troiano, Briefel, & Carroll, et al., 2000). Therefore, it is necessary to examine the type of calories consumed. Wylie (2005) cited three pediatric studies that found a significant correlation between fat intake and childhood obesity. Recent efforts have been effective in decreasing the fat intake among some age groups of children as a result of the dietary recommendations issued for children in 1991 (Slyper, 2004). According to Wylie (2005), total carbohydrate intake has increased over the past two to three decades. This is a concern due to the manner in which the body processes the different types of carbohydrates. Pediatric studies regarding the conversion of

carbohydrates and their interaction with proteins are continuing (Saris, 2005). The prevalence of foods high in carbohydrates has increased as society has placed a high value on consuming food and drink in a fast and convenient manner.

In order to expend calories and maintain a balance of energy it is necessary to participate in activities that are active in nature. Leisure activities such as team sports and outdoor leisure activities promote expenditure of energy and other health benefits. In addition, walking or biking to school is a functional way of increasing activity levels. There is an increasing popularity of sedentary activities such as watching television, playing video games, and using the computer. In addition, the physical design of communities affects the amount of activity as children and adolescents are less likely to walk or ride their bike. When these sedentary activities occupy large percentages of the daily life of a child, there is a potential for their level of physical activity to be adversely affected (Koplan, Liverman & Kraak, 2005).

According to Whitaker, Wright, Pepe, et al. (1997), the weight status of the parents is a predictor of childhood obesity continuing into adulthood. Both genetic and environmental factors have been shown to contribute to a predisposition to obesity (Saris, 2005). Butte, Cai, Cole, and Comuzzie (2006) state that “the current surge in childhood obesity in the United States is attributable to an interaction between a genetic predisposition toward efficient energy storage and a permissive environment of readily available food and sedentary behaviors” (p. 646).

There are medically related risk factors that affect obesity in children. First, psychological factors such as depression may contribute to obesity as children often overeat to cope with their emotions (Mayo Clinic, 2005). In addition, weight gain is

associated with many medications including antidepressants, anticonvulsants, and selective serotonin reuptake inhibitors (Wylie, 2005). There are also genetic diseases that predispose children to obesity including Prader-Willi, Bardet-Biedl, and trisomy 21 syndromes (Mayo Clinic, 2006; Wylie, 2005). The risk for obesity is also greater for individuals with disabilities according to the Centers for Disease Control and Prevention (2006).

According to Miller, Rosenbloom, and Silverstein (2004), societal factors play a significant role in contributing to childhood obesity as they frequently coexist and influence the other risk factors. The increase in food portion sizes, limited safe outdoor activities particularly in low income neighborhoods, increasing quantities of junk food advertising, and the growing prevalence of sedentary activities are societal risk factors that contribute to childhood obesity. In addition, children are susceptible to the food choices of their families because their parents usually shop for groceries and provide their meals (Mayo Clinic, 2006). Another familial factor that has developed in recent years is that parents work outside of the home for longer hours and more meals are eaten outside of the home (Koplan, Liverman & Kraak, 2005).

Implications of Obesity in Children

There are immediate and long-term risks to physical and psychological health associated with childhood obesity. The immediate risks include type 2 diabetes, sleep apnea, hypertension, various orthopedic problems, and psychosocial burdens (Wylie, 2005; Koplan, Liverman & Kraak, 2005). There has been a sharp increase in the frequency of diabetes in children with 30 percent of boys and 40 percent of girls born in the United States in 2000 at risk for being diagnosed with type 2 diabetes in their lifetime

(Koplan, Liverman & Kraak, 2005). Sleep apnea has been found to be present in 7 percent of obese children (Wylie, 2005). Orthopedic problems in children include weight stress in the joints of the hip and leg, bowed legs, and slipped capital femoral epiphysis (American Obesity Association, 2002, p. 1). Psychosocial burdens associated with obesity include poor self-esteem, negative self-image, depression, and withdrawal from peers (American Obesity Association, 2002, p. 1).

According to Wylie (2005), “as many as 80 percent of obese children become obese adults and persistent obesity over seven years of age is an important predictor of obesity in adulthood” (p. 633). Just as obesity often carries over into adulthood so do the health implications from childhood such as diabetes, hypertension, orthopedic issues, and sleep apnea. In addition, adults who are obese are at greater risk for physical conditions including cardiovascular disease, breast cancer, prostate cancer, stroke, gall bladder disease (Expert Panel on Identification, Evaluation, and Treatment of Overweight in Adults, 1998). The psychosocial issues continue to be present and often intensify in adulthood. Regardless of age, there is a psychosocial burden associated with living in a society that stigmatizes the condition of obesity (Koplan, Liverman & Kraak, 2005). This stigma can often result in a limitation of opportunities for education, employment and housing (Puhl & Brownell, 2001).

According to Koplan, Liverman and Kraak (2005), the economic impact in relation to national health care expenses amounts to approximately \$98 billion to \$129 billion (p. 131). Job absenteeism due to obesity related illness amounts to approximately \$25 billion per year (Bungum, Satterwhite, Jackson et al., 2003, p. 456).

Interventions for Children Who Are Obese

A Multi-disciplinary Team Approach

In order to address the widespread issue of obesity, it is necessary to take into account that there are multiple causes and implications of this disease. A multi-disciplinary approach has been shown to be successful for addressing the multiple causes and implications.

A multi-disciplinary team advocate approach was shown to benefit individuals with multiple chronic conditions (Krause et al., 2006). There were 39 participants in the study (15 men and 24 women) with a mean age of 52.39 years of age. To measure the participants' perceptions of their physical and psychological well-being, five surveys were completed at the beginning of the process and one year later.

The multidisciplinary team consisted of a primary nurse advocate, primary care physician, and a behavioral counselor. Following a review and evaluation of whole-person health issues, the team collaborated with each participant to determine measurable goals. Throughout the program, the participant and team had regular face to face meetings as well as meetings with the participant's health program providers and family members. The participants also had access to individual and group education, compliance tracking, decision support, and coaching. The results of the study showed an increase in exercising and healthy eating habits. Furthermore, there was an increase in the participants' perception of personal control, physical functioning, self-efficacy, and life satisfaction. In addition, health care costs were significantly lower than the projected costs (Krause, et al.).

A study conducted by Valverde, Patin, Oliviera, Patin, and Vitolo (1998), assessed the impact of a multidisciplinary approach to weight control in children. Data

was collected by retrospectively analyzing the clinical files of all the patients treated in an outpatient public service program over a period of one year. The study sample consisted of 198 children and adolescents. Of this sample, 108 were girls and 90 were boys, and the average age of the sample was 9.25 years. The team consisted of a nutritionist, pediatrician, and a psychologist. The focus of the program was to achieve a long term reduction in the weight/height ratio, without focusing on weight loss as the main goal of treatment. The intervention consisted of individual monthly visits with the team members, routine physical examination, and dietetic counseling. Each patient was given individualized strategies and approaches that could easily be applied to their lives. Many of these strategies involved small, permanent changes “without severe energy restriction and without reductions in metabolism or loss of mean body mass” (p. 513).

The following variables were among those analyzed in this study: weight, initial and final BMI, duration of obesity, number of visits, and intervals between visits. The study results indicated that the adjusted body mass index (BMI) was significantly lower on the last visit than on the first visit. The outcome was significantly better in those patients who attended six or more clinic visits. In addition, it was shown with the female population that the outcome was better when the time between visits was less than 52 days (Valverde, et al.).

Family Involvement

The following literature suggests that families influence health through three pathways: a direct biological pathway (genetics), a health behavior pathway (lifestyle behaviors), and a psychophysiological pathway (changes in cognition and emotion). According to the CDC’s National Office of Public Health Genomics (2006), there is a

rapidly increasing number of scientific reports announcing the discovery of genes related to obesity. Although genetics is a factor, lifestyle behaviors and changes in cognition and emotion have a bigger impact on health and obesity in children and adolescents.

Parents play a critical role in the prevention of childhood obesity because of their direct influence on the physical and social environments of the child as well as their impact on social behaviors and attitudes (Ritchie, Welk, Styne, Gerstein, & Crawford, 2005). The authors also noted that there are “modifiable influences on childhood weight gain that are subject to parental impact” (p.70) including: skipping breakfast, sedentary behaviors, and eating meals away from home.

In a study published in 2003, McLean, Griffin, Toney, and Hardeman completed a review of trials to evaluate the effectiveness of family involvement in the treatment of children with obesity issues. Positive results were noted when children and their parents were involved in weight control programs. In contrast, the study results indicated that adolescents had more success with weight loss when treated alone. Family interventions such as weight control programs that taught multiple behavior change techniques to parents and children were shown to have beneficial effects.

In his study Campbell (2003) examined issues regarding the impact of family dynamics on physical health. The study results showed family dynamics have a powerful influence on health, equal to that of traditional medical risk factors; emotional support is the most important and influential support provided by families, and negative, critical, or hostile family relationships have a stronger influence on health than positive or supportive relationships.

Programmatic Interventions

To effectively address the issue of obesity, the literature reviewed below indicates that a multi-disciplinary team approach and involvement of family members are key factors for success. The types of interventions that are implemented are also integral to successfully impacting obesity in children.

In order to develop effective interventions to address the issue of obesity, researchers have examined the barriers to physical activity as well as the motivational factors for physical activity. A study of the barriers to physical activity conducted by Robbins, Pender, and Kazanis (2003) focused on girls ages 11-14. The results of a questionnaire about the barriers to exercise found that a major barrier for adolescent girls were feelings of self-consciousness. For example, the following barriers had the highest mean: “I am self-conscious about my looks when I exercise” (p. 209), and “I am not motivated to be active” (p. 209). Programmatic recommendations, made by Robbins, et al., to address these barriers included working with girls to improve self-esteem and decrease feelings of self-consciousness, providing girls the opportunity to have input into their program for physical activity, and developing life skills. Logistical considerations with regard to the barriers included providing opportunities for physical activity before and after school as well as allowing sufficient time for cosmetic needs such as showering and styling hair after physical activity.

In their study, Haverly and Davison (2005) sought to identify sources of activity motivation for adolescents, test the differences in motivators for those adolescents at risk for physical inactivity, and identify links between activity motivation and physical activity. This study was a cross-sectional analysis 202 boys and girls in the sixth to eighth grades in a rural community. Of the sample, 40% of the boys and 40% of the girls were

overweight. The self-reporting measures the *Activity Motivation Scale*, and the *Physical Self Description Questionnaire* (to measure sport competence) along with the students' body mass index were used to assess the participants' physical activity. Personal fulfillment such as enjoyment and wanting to be fit were identified most frequently by the participants as motivating factors for physical activity; personal fulfillment was consistently linked with higher levels of self-reported physical activity. The authors noted that it was surprising to find that the sample showed "a general lack of association for parent-influenced and peer-influenced motivation" (p. 1119). Haverly and Davison suggested that these results may indicate that parents and peers influence physical activity by direct facilitation rather than activity motivations (i.e.: taking the student to sports practice).

A study conducted by Yin, Wu, Liu, and Yu (2005) explored the use of a mix of attributes approach to address obesity in children. The study participants were 118 fourth grade students who were identified as obese according to anthropometric measurements. Of this number, 66 were in the experimental group and 52 were in the control group. The students in the experimental group participated in the intervention that used a mix of attributes approach. The students in the control group did not participate in any of the interventions. Both groups were given a pre-test that was administered prior to the intervention and a post-test that was given one month after the completion of the intervention. The intervention program considered five attributes including: 1) content that was developed based on the findings of the child's pre-test and interviews, 2) interactivity between the educators and the learners; 3) control in that the children had opportunities to express their opinions and decide the pace of learning, 4) multiple

channels that included lecture, printed materials, and discussion, and 5) objectivity in the outcome evaluation. The findings showed a significant decrease in the degree of obesity using anthropometric measurements. In addition, the experimental group showed improved knowledge and slightly improved behaviors as opposed to the control group. There was not a significant degree of improvement in the attitudes of the students in the experimental group after the completion of the intervention program. The authors suggested adding individuality as an attribute to increase the program's focus on improving attitude.

Implementation of Interventions

Combining the intervention approaches can be a logistical challenge. The following is a review of two programs that have successfully integrated multiple approaches.

Joyce et al. (2002) outlined specifics for implementing a summer camp with a focus on encouraging positive health changes. The goal of the camp was to introduce the children to nutrition information and structured exercise. During the two week day camp, the children, aged eight to twelve, participated in a daily nutrition class provided by the extension service. Topics included signs of good nutrition, food labels, and an introduction to the food pyramid. The campers ate lunch at camp, and this provided additional opportunities to encourage healthy eating habits. Parents were encouraged to attend the camp to assist with carryover at home. The campers' evaluation form completed at the end of camp indicated that 95 % of the children said they learned new things about food. Improvement in activity level was noted by a decrease in the amount of time it took for the daily walk.

Schreiber, Marchetti, and Crytzer (2004) examined whether a child with disabilities is able to participate and benefit from an exercise program. A clinical case report about one child with disabilities and her experience with participation in an exercise program for children with disabilities was used to examine this issue. The subject of the case report was an eleven year old girl with hypotonia and mild retardation over a 10 month time period. The outcomes used in the case report included: maximum running velocity, energy expenditure index, rating of perceived exertion, and a short parent questionnaire. The community based fitness program was held in six-week increments over a 10 month period and was open to all children ages 8-13. During the one hour sessions, a trained volunteer was paired with a participant to facilitate the child's participation in an individualized exercise program that incorporated both strengthening and aerobic activities. The exercise programs, developed by physical therapists, began with a group warm-up activity on a therapy ball with physical assistance provided as needed. After the warm-up activity, students either participated in a group step aerobic class or completed their individualized exercise program. The session ended with a group activity such as a game of volleyball or kickball. Throughout the activities, the volunteers and therapists monitored the participants' response to the activity. The outcomes for the individual in the case study concluded that she "was able to complete gross motor tasks with increased efficiency and decreased energy requirements" (p. 176). In a brief questionnaire given at the end of the program, the child's parent provided positive comments regarding the child's increased confidence level and ability to participate in family walks. Although there are limitations with the methodology of this study in that it only examined one child, the logistical information about the

implementation of the program and the outcomes measures is valuable. The authors cite a limitation in the availability of outcome measures stating that “Much work remains to be done to establish reliable and valid measures of disability that represent a meaningful change for the participants and their families” (p. 177).

Measurement Tools

The Body Mass Index (BMI) is a widely used measure of body fat. BMI is calculated using an individual’s height and weight. The formula is: $BMI = \frac{\text{weight (lb)}}{[\text{height (in)}]^2} \times 703$. For both male and female adults, the BMI number is plotted into one of four categories. The categories are underweight, normal, overweight, and obese. For children and teens, the BMI number is converted into a percentile ranking using the Center for Disease Control BMI-for-age growth charts. The percentile ranking can be used to compare the child’s BMI to that of peers of the same age and sex. In addition, the percentile ranking is used to correspond with one of the four weight categories- underweight, healthy weight, at risk of overweight, and overweight (The Center for Disease Control and Prevention, 2007).

The BMI is used as a screening tool to determine if a child aged 2-20 years is in the overweight, at risk for overweight or underweight category. The Center for Disease Control and Prevention (2007) indicates that “BMI is a reliable indicator of body fatness for most children and teens” (p. 1). However, the Center for Disease Control and Prevention (CDC) states that the BMI is not intended for use as a diagnostic tool. Other anthropometric assessments including skin fold thickness measurements, family history, and an assessment of diet are used to help a physician make an accurate diagnosis.

There are both strengths and limitations of using BMI for measuring body fat. The strengths include the low cost to determine the BMI number. Scales and methods of measuring height are readily available and inexpensive. The number can be calculated using the formula or using the BMI calculators found on websites such as the Center for Disease Control and Prevention site. The BMI results have been shown to correlate with other more expensive anthropometric measures such as underwater weighing and dual energy x-ray (The Center for Disease Control and Prevention, 2007).

The use of the BMI as a measure for individuals may be limited. As Watts, Naylor, Davis, Jones, Beeson, Bettenay, et al. (2006) stated “Indices of body weight such as the BMI and total body weight are useful at a population level, but do not discriminate between lean mass and fat mass in an individual” (p. 439). According to Duncan, Schofield, and Duncan (2006), the lack of accountability for variation in the body size of certain ethnic groups such as Asian, may lead to misclassification.

The measurement of physical activity level is important for developing a program to address obesity as well as assessing individual progress. The pedometer is becoming a widely used tool to measure physical activity level. A pedometer is defined in Merriam-Webster’s Dictionary (1990) as “an instrument usually in watch form that records the distance a person covers on foot by responding to the body motion at each step” (p. 866). The pedometer records the number of steps taken by measuring the body motion of the hips. Pedometers are relatively inexpensive measurement tools that are readily available commercially. The U.S. Department of Health and Human Services (2005) provides recommendations for physical activity. In order to reduce the risk of chronic disease, it is recommended that adults complete 30 minutes of physical activity per day which is the

equivalent of approximately 3,000 steps per day. For children, 60 minutes of physical activity or approximately 6,000 steps is recommended to promote overall health and a healthy weight. A baseline number of steps can be measured by recording the number of steps from an average day. This baseline data can be used for goal setting and measuring progress related to specific interventions.

The strength of pedometers as a measurement tool for physical activity in children and adolescents lies in the ease of use and cost effectiveness (Strycker, Duncan, Chaumeton, Duncan, & Toobert, 2007). According to Duncan, Schofield, and Duncan (2006), pedometers are a useful tool for measurement with young children who may have difficulty accurately recalling their activities or behaviors. Pedometers can also be used as a method of intervention. Schofield, Mummery, and Schofield (2005) found interventions that used a pedometer were effective with adolescent girls who had low activity levels.

The lack of data to support the physical activity recommendations is a limitation for the use of pedometers according to Flohr, Todd and Tudor-Locke (2006). Pedometers have limitations for use with the special needs population. Since pedometers measure hip movement, it would not be an accurate measure of physical activity for a child who uses a wheel chair for mobility or one who does not ambulate independently.

Goal Attainment Scaling (GAS) is a measurement tool that was developed by Kiresuk and Sherman in 1968 (Kiresuk, Smith & Cardillo, 1994). The goals for each client are determined through an interview with the client. The individualized and client centered goals are then placed into the tool and the measurement of the goal is compared against itself on a five point scale. A strength of the GAS is the allowance for a variety of

physical and cognitive goals to be measured. The time frame for measuring the goals is determined by the client and the health care professional making it adaptable for a variety of settings. Limitations of the GAS according to Jones et al. (2006) include the potential for bias in having the clinicians responsible for programming as the ones to both set and evaluate the goals.

CHAPTER III

METHODOLOGY

The development of a camp for children who struggle with obesity was selected based on the student's current work on a wellness camp at Children's Care Hospital and School (CCHS) in Sioux Falls, SD. Based on the general programming ideas conceived by the multi-disciplinary wellness camp team at CCHS, the student focused on developing a curriculum for a wellness camp that could be implemented in a variety of community based settings. The role of occupational therapy in creating an environment conducive to lifestyle changes was central to the curriculum development of the camp.

An extensive review of literature was completed on the prevalence and characteristics of obesity in children as well as interventions such as a multi-disciplinary team approach and family involvement. A review of the use of measurement tools both for screening and outcome measures was also conducted. After reviewing the literature, it was concluded that there are significant health and societal impacts that accompany the increasing prevalence of obesity in our communities. One of the challenges in addressing obesity is developing approaches that will aid the child and their family in implementing lifestyle changes in their daily lives. Health care professionals are in a unique position to help address the societal issue of childhood obesity. It was also concluded that health care professionals may benefit from a resource that provides a curriculum for implementing a wellness camp in their own community.

The author collaborated with the other members of the multi-disciplinary wellness camp team at CCHS with regard to discipline specific content areas and programming needs. Consultation with other members of the CCHS staff was conducted in the areas of marketing, accounting, volunteer management, clinical management, and admissions. A business plan for the wellness camp including a budget and marketing strategies was completed as fulfillment of a class project (Appendix).

The author recommends that the wellness camp be implemented at CCHS incorporating the curriculum using a multi-disciplinary team approach. There will be data collected at the beginning and the end of the camp including heart rate, strength, endurance, balance, body mass index, and flexibility. The results will be analyzed to determine the areas in which the campers demonstrated the most gain. As the camp progresses, the data results could be used to enhance research on approaches for children with obesity. Upon completion of the camp, both campers and their families will complete satisfaction surveys regarding the curriculum of the camp. The data from the surveys will be compiled to aid with future program planning and obtaining grant funding.

CHAPTER IV

PRODUCT

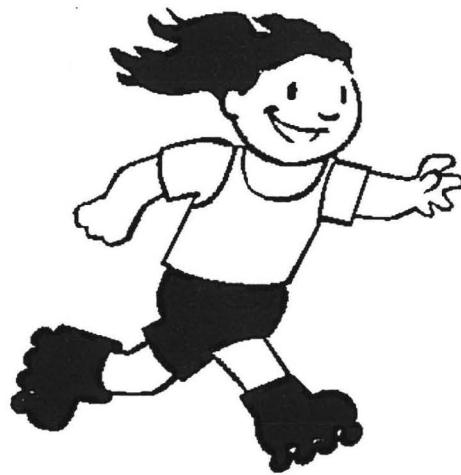
The product developed for this project is a handbook that serves as a comprehensive resource for implementing a wellness camp for children with obesity. The handbook was designed to be an easy to use resource for multi-disciplinary teams of healthcare professionals to use in their communities. The multi-faceted curriculum included in the handbook takes a fun, community based approach to making healthy food choices and choosing active leisure options.

The handbook provides detailed descriptions of the structure of the camp, staff roles, goals of the camp, and adaptations for different populations. The handbook is divided into six sections. Each section contains all the information and forms needed to run each one of the four hour camp sessions. At the back of the handbook there are survey forms designed to be completed by campers and parents at the conclusion of the camp.

The Occupational Adaptation theory by Schultz and Schkade (Schultz, 2005) was used to guide the development of this scholarly project. According to Schultz, the key construct of Occupational Adaptation is that “all therapy is directed at improving the person’s adaptiveness” (p.8). Whereas, the basic assumption of most theories is “if we help the patient become more functional, he will adapt” (p. 3); the basic assumption of Occupational Adaptation is “if we help the patient to become more adaptive, he will be able to function” (p. 19). The structure of the wellness camp applies the concepts of the

Occupational Adaptation theory in that the therapist is an “agent of the environment” (Schultz, p. 15) and the patient (in this case, the camper) is seen as the “agent of change”. This is evident in the product as the therapist creates the environment through the programming, wearing clothes that represent a specific time of day, and the community based setting. The camper’s role is to actively participate in the camp, learn new skills, and apply the new knowledge to their daily lives

Livin' Right! Morning, Noon, and Night: Wellness Camp for Kids



**Lynne Bradbury, OTR/L
Advisor: Gail Bass Ph.D., OTR/L**

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INTRODUCTION

The prevalence of childhood obesity is rapidly increasing in the United States and the percentage of overweight or obese children in South Dakota exceeds the objective set by the U.S. Department of Health and Human Services in the document Healthy People 2010 (South Dakota Department of Health).

Health care professionals are in a unique position to help address the societal issue of childhood obesity. “The Livin’ Right! Morning, Noon, and Night: Wellness Camp for Kids” is a multidisciplinary team approach to making lifestyle changes that will help decrease obesity. The professionals on the team include a physical therapist, occupational therapist, and dietitian. The multi-faceted curriculum takes a fun, community based approach to making healthy food choices and choosing active leisure options. In addition, families are included to help reinforce the choices and increase the accountability for the child.

The contents of this handbook are intended to aid health professionals with implementing a wellness camp for children in their community. The handbook is divided into six sections. Each section contains all the information and forms needed to run each one of the four hour camp sessions. At the back of the handbook there are survey forms designed to be completed by campers and parents at the conclusion of the camp.

This handbook is a product of occupational therapy as it is based on occupational therapy theory and practice. Occupational therapists utilize a holistic approach to working with their clients. Promotion of health and wellness for children and their families through the development of a wellness camp such as the “Livin’ Right!” camp employs a holistic approach to addressing the issue of childhood obesity. The primary role of the occupational therapist in this type of wellness camp is that of creating an environment of change to help the campers adapt to the lifestyle changes.

This handbook is a result of multi-disciplinary collaboration with the Wellness Camp Team at Children’s Care Hospital and School. The contributions of Lois Vogel, PT and Ellen Grimlie, Dietitian toward programmatic and activity recommendations have been numerous and of great value to the development of the camp.

CAMP STRUCTURE

- ❖ This camp is intended to be community based. This helps the campers and their families become familiar with resources in their community for living a healthy lifestyle.
- ❖ The curriculum for the camp is geared toward third to fourth graders ages 8 through 10 years old. The camp activities can be easily adapted to meet the needs of a variety of age groups.
- ❖ The camp is designed for six sessions that are four hours in length. However, it is possible for the activities to be used in different combinations or for the time allotted to be adjusted based on the needs of your camp.
- ❖ Family involvement is important to the success of the camp. Family members are invited to attend to camp on sessions 3 and 6. Communication with the families will take place throughout the camp by a weekly written summary, staff availability for questions both 15 minutes before and after camp, and through informational handouts on a variety of wellness topics.
- ❖ The schedule for the camp has generally been divided into hours and the length of each activity is indicated next to the activity. The general schedule involves 2 hours of physical activities and 2 hours of nutritional information and meal preparation.
- ❖ Creating the camp environment is a key ingredient in the structure of the camp. Shaping a camp environment that represents the camper's daily lives will give them an opportunity to adapt to the challenges presented as they apply healthy living in their homes, schools, and communities. The theme of daily life will be carried out primarily in the food and nutrition sessions. Meals representative of different times of day will be used as well. Using physical props and dressing like one would at the given time of day also contribute to the creation of the environment.
- ❖ The theme for this camp revolves around a day in a child's life. The times of day are used to structure the choices that they will make throughout their day. Many of the decisions surrounding a child's food and fitness choices are strongly impacted and limited by their environment. However, children do have the opportunity to make choices for themselves throughout their day. The camp focus on meals throughout the child's day is intended to empower the children to make healthy decisions.

CAMP STAFF

- ❖ Physical Therapist:
 1. Coordination of the pre and post camp screenings
 2. Lead exercise groups/outings
 3. Presentation/handouts to families on ideas for increasing the activity level of the entire family
 4. Model healthy lifestyle choices

- ❖ Occupational Therapist:
 1. Lead group activities related to life skills such as meal preparation, grocery shopping, and time management.
 2. Address coping skills needed to make lifestyle changes (i.e.: positive self-esteem, assertiveness skills)
 3. Presentation/handouts to the campers' families on how to help implement lifestyle changes
 4. Model healthy lifestyle choices

- ❖ Dietitian
 1. Plan healthy snacks/meals during camp
 2. Provide instruction on meal planning, the food pyramid, and portions
 3. Presentation/handouts to the campers' families on healthy food choices and how to read food labels
 4. Model healthy lifestyle choices

- ❖ Aquatics Instructor
 1. Lead exercise groups in the Children's Care pool and/or community pools
 2. Monitor the campers and pool area for safety
 3. Presentation/handout to the campers' families on their child's skill level and swimming pool resources in the community
 4. Model healthy lifestyle choices

- ❖ Students from PT, OT, Dietary professional programs
 1. Assist with implementation of camp activities upon the direction of the clinician in the corresponding discipline
 2. Assist camp staff with set-up and clean-up of activities
 3. Model healthy lifestyle choices

- ❖ Volunteers
 1. Assist campers during camp activities
 2. Assist camp staff with set-up and clean-up of activities
 3. Model healthy lifestyle choices

CAMP GOALS

1. Fitness:

At the conclusion of the camp experience participants will have an awareness of:

- a. Purpose of exercise
- b. Purpose of stretching
- c. How to check heart rate
- d. Importance of warm-up and cool-down

2. Food and Nutrition:

At the conclusion of the camp experience participants will have an awareness of:

- a. Measuring/portions
- b. Food labels
- c. Hygiene/food safety
- d. Food groups

ADAPTING FOR DIFFERENT POPULATIONS

Obesity is a concern for all children including those with special needs. By its design, the “Livin’ Right!” wellness camp could be of benefit to children with special needs. The staff is comprised of professionals specialized in seeing an individual’s potential and adapting the environment to help meet their goals. The independence with activities can be increased through the use of adaptive equipment in the kitchen, application of specialized techniques, a low camper to staff ratio, and customized exercise programs. There are resources included in the handbook that address yoga and exercises for use with children with special needs. Some of the activities, such as wheelchair basketball, aid in fostering acceptance of differing abilities.

Livin' Right! Morning, Noon, and Night: Wellness Camp for Kids

| DAY | HOUR 1 | HOUR 2 | HOUR 3 | HOUR 4 |
|-----|--|---------------------------------------|--|---|
| 1 | Camp Welcome/Ready, Set, Go! | Ready, Set, Go! Pyramid Picnic | Pyramid Picnic | Scouting Through the Day |
| 2 | A Day in the Park | A Day in the Park | Bright and Early Breakfast | Bright and Early Breakfast |
| 3 | Family Field Day (Families are invited to attend) | Family Field Day | Line Up for Lunch | Line Up for Lunch |
| 4 | Get Moving! | Cool Moves for Summer | Sit Down Snacks | Sit Down Snacks |
| 5 | Pool Play | Pool Play/Food Finding | Set for Supper | Set for Supper |
| 6 | Finish Line! | Basketball on Wheels | Family Food Detectives (Families are invited to attend) | Family Food Detectives/Camp Closing |

DAY 1

❖ Ready, Set, Go!

❖ Pyramid Picnic

❖ Scooting Through the Day

HOUR 1-1 ½:

Ready, Set, Go!

Warm-up(30 minutes): Welcome to camp, introductions, ice breaker game

Activity (45 minutes): Screening Stations (10 minutes/station; 5 minutes to account for rotating)

Campers rotate through the four stations and staff fills in the screening form. After completing each screening station, each camper receives a prize of a camp supply item (camp shirt, water bottle, tote bag, and recipe folder).

1. Flexibility:
2. Strength
3. Balance
4. Strength/Endurance

Cool-down (15 minutes): Take a break, get a drink of water.

Supplies:

Stopwatch

Camp supply prizes (camp shirt, water bottle, tote bag, and recipe folder)

Screening form

Pens

Heart rate monitor

Access to stairs

Ball

HOUR 1 ½ - 3:

Pyramid Picnic

Activity (30 minutes): Instruction on the USDA Food Pyramid for Kids using poster and handouts. The leaders can use the food for the cooking activity to illustrate examples of items in the food groups.

Activity (15 minutes): Introduce hygiene practices for preparing food and orientation to the kitchen.

Activity (45 min): The campers will build their own sandwich with ingredients representing all of the food groups. The food will be set up in the food group stations and the campers go around and assemble their sandwich. They then gather on a picnic blanket on the floor or at a table with a picnic tablecloth to eat their sandwich (fake picnic ants are optional!).

Supplies:

Food Pyramid poster
Food Pyramid handouts
Sandwich ingredients
Milk
Paper plates
Plastic cups
Picnic blanket/table cloth

HOOR 4:

Scooting Through the Day

Warmup activity (15 minutes): Core strengthening with physioballs

Activity (30 minutes):

Scooterboard relays/cones

Scooter hockey

Cool down activity (15 minutes): Stretches/Yoga

Staff demonstrates and assists campers if needed.

Supplies:

Physioballs

Yoga mats

A large gym space with floor that is not carpeted

1 scooter board/camper

1 scooter board hockey sticks/camper

1 hockey puck

8 cones (for hockey goals and relays)

Arm bands/jerseys to denote teams

Masking tape

2 batons or other item to use during relay

Icebreaker Game

Campers and staff stand in a circle. Pass a ball clockwise around the circle using hands or feet. When the player is holding the ball, they say their name and favorite food along with the name and favorite food of the person that passed the ball to them.

Scooter board relays

Set up two rows of cones. There will be 4 cones in each row that are to be placed approximately 5 feet apart. Make starting lines using masking tape. Divide the campers into 2 teams. Each camper is given a scooter board and each team is given a baton to pass off in the relay. The teams line up behind their starting line and get in the position determined by staff (on their stomachs, knees, etc.). After weaving in and out of all of the cones riding the scooter board, the camper passes the baton off to the next camper. The team who has all of their players complete their course first is the winner.

Scooter board hockey

Create 2 teams of 5-6 players. The playing area will be approximately the size of a volleyball court. Give each camper a jersey/armband to help the team members easily know who is on their team. Each player gets a scooter board and scooter board hockey stick. One player on each team will be the goalie. Follow the general rules of hockey.

**CCHS SUMMER WELLNESS
SCREENING FORM**

Name:

Ht:

Wt:

DOB:

Resting HR:

Target HR:

Postural Alignment:

Fitness Test:

| Test | Date | Date | Date |
|--|-----------------------------|----------------|---------------------------------|
| BMI lb/(ht in inches)² | | | |
| Flexibility: (sit and reach) cm Hamstrings Thomas Test Apley Scratch Test | Trial 1 | Trial 2 | Trial 1 Trial 2 |
| Strength: Situps Pushups (modified) Toes raises Sit to stands | Trial 1 | Trial 2 | Trial 1 Trial 2 |
| Balance: One legged Functional reach test Heel to toe line walk | Eyes open closed | Eyes | Eyes open Eyes closed |
| Strength /Endurance: Shuttle Run 3 minute run/walk (EEI= working HR- restingHR <hr/> speed Stair climbing (timed) | Trial 1 | Trial 2 | Trial 1 Trial 2 |

RECIPE

Food Pyramid Sandwich

1 slice of bread

Spinach leaf

Carrot stick

Sliced mushrooms

Pineapple

Kiwi

Strawberry

Banana

American cheese slice

Monterey Jack cheese

Cheddar cheese slice

Roast beef

Turkey

Ham

Olive oil

Mayo

Salad dressing

Horseradish

1 slice of bread

RESOURCES

Food Pyramid

www.MyPyramid.gov

Hygiene

American Dietetic Association: www.homefoodsafety.org

Nutrition Newsletters for Parents of Young Children, USDA, Food and Nutrition Services: www.fns.usda.gov/tn/Resources/nibbles.html
(Specific newsletters: *The ABCs of Handwashing, Let's Cook Together*)

Yoga

Buckley, A. (2003). *The KIDS' yoga deck*. San Francisco: Chronicle Books.

Sumar, S. (1998). *Yoga for the special child*. Buckingham, VA: Special Yoga Publications.

Physioball Exercises

Ball exercise chart from Fitter First: www.fitter1.com

Spalding, A., Kelly, L., Santopietro, J., Posner-Mayer, J. (1999).
Champaign, IL: Human Kinetics.

DAY 2

❖ **A Day in the Park**

❖ **Bright and Early Breakfast**

HOURS 1 & 2:

Day in the Park

Warm-up (15-30 minutes): Transport (van or walking if possible) to a public swimming pool and park.

Activity 1 (30 minutes): Outside games to include volley ball, baseball/Velcro ball, soccer, Frisbee. There will be 2 games going on at a time and the camper can choose which one they want to play. Camp staff will explain the rules and rotate the games after 15 minutes.

Activity 2 (45 minutes): Swim at a public pool. Allow time for changing clothes before and after swimming. Camp staff assesses each student in the pool for their skill level and the need for flotation devices. The campers are encouraged to keep moving by playing games or swimming across the pool.

Cool- down (15 minutes): Transport back to the camp building.

Supplies:

- Swimsuit
- Towel
- Sunscreen
- Bug spray
- Flotation devices
- Volleyball
- Volleyball net
- Whiffleball/bat
- Velcroball/mitt
- Soccer ball
- Frisbee

HOOR 3-4:

Bright and Early Breakfast

Wake-up! (15 minutes): Staff members are dressed in robes or pajamas with slippers and act out waking up in the morning. Campers are either dressed in morning clothes or have an item that represents morning (i.e.: pajamas, slippers, alarm clock, toothbrush). Staff members pass around an alarm clock and when it is in the campers' hands it is their "time" to tell the group what their favorite breakfast food is.

Activity (30 minutes): Instruction on serving sizes. See the Resource section for teaching tools. The worksheets compare a serving size to a common item (i.e.: a serving of meat is the size of a deck of cards).

Campers apply what they have learned by matching a serving of breakfast food to the corresponding measurement item. The food used can be from the ingredients for the day's recipe or using "fake food."

Campers are given a set of measuring cups that are color coded and matches with a food group. Campers use a measuring cup to measure a serving of cereal.

Activity (45 minutes): Make a variety of quick breakfast foods using tortillas.

Cool-down (30 minutes): On the last day of camp, there will be a Food Detective Party. Each day the campers will help prepare for that activity by working in small groups to select a food, complete the food facts worksheet, and add items to the grocery shopping list. Campers can use the written resources provided.

Throughout the camp, campers will receive copies of the recipes and handouts of nutritional information. Each day time is set aside to assemble the papers into their own cookbook.

Supplies:

| | | |
|------------------------------------|------------------------|-------------------------------|
| Morning attire | Ingredients for recipe | Cups |
| Alarm clock | Plates | Silverware |
| Worksheets | Bowls | Set of measuring cups/student |
| Items to demonstrate serving sizes | | Folder for cookbook |

RECIPE

Breakfast Wraps

Step 1:

Place a wrap (tortilla) on a clean microwave-safe plate, a paper plate, or a napkin. Soften the wrap by cooking it in the microwave.

Step 2:

Top with one or more of the following spreads:

- Applesauce
- Refried beans
- Low-fat plain or flavored cream cheese
- Cottage cheese
- Jam or jelly
- Salsa
- Peanut butter

Step 3:

Add one or more of the following toppings:

- Shredded cheese
- Chopped nuts (use sparingly)
- Cooked scrambled eggs
- Dried fruit (raisins, dates, cranberries, cherries)
- Chopped veggies such as tomatoes, green pepper, carrots, lettuce, onion, broccoli, etc.)
- Chopped apple
- Chopped low-fat deli meat
- Sliced banana or strawberries

Step 4:

Wrap, roll, and go.

FOOD FACTS

Name of food: _____

Food Group: _____

Recommended serving size: _____

Season available: _____

Approximate cost: _____

FOOD DETECTIVE GROCERY LIST

Fruits:

Vegetables:

Dairy:

Meat and Beans:

Grains:

Other:

RESOURCES

Yoga

Buckley, A. (2003). *The KIDS' yoga deck*. San Francisco: Chronicle Books.

Sumar, S. (1998). *Yoga for the special child*. Buckingham, VA: Special Yoga Publications.

Physioball Exercises

Ball exercise chart from Fitter First: www.fitter1.com

Spalding, A., Kelly, L., Santopietro, J., Posner-Mayer, J. (1999).
Champaign, IL: Human Kinetics.

Serving Sizes

Nutrition Newsletters for Parents of Young Children, USDA, Food and Nutrition Services: www.fns.usda.gov/tn/Resources/nibbles.html

(Specific newsletters: *How Much Do You Eat?*, *Pyramid Servings: How Much? How Many?*)

Recipe

Michigan State University Extension:

<http://msue.stclaircounty.org/Family/FoodNutritionHealth.htm>

DAY 3

❖ **Family Field Day**

❖ **Line up for Lunch**

Hour 1 -2

Family Field Day

Warm-up (15 minutes): Core strength with physioballs and stretches

Activities (45 min sessions x 2):

- ❖ Weighted ball throw- parents use their non-dominant hand
- ❖ Shuttle run- parents run backwards
- ❖ Potato sack race
- ❖ Long jump- parents hop or jump backwards

Cool Down (15 minutes): Stretches/yoga

Supplies:

Physioballs

Yoga mats

Weighted balls

Masking tape

Bean bags (“shuttle”)

Plastic garbage bags

HOUR 3 - 4

Line Up for Lunch

School Bell (15 minutes): Kids wear back packs, school clothes, sit at tables/desks. Campers are encouraged to drink water from their water bottles. Talk about how drinking water at school is important for health and how they can do it throughout their school day (drinking fountain, water bottle in class).

Activity (15 minutes):

Campers will divide into groups of 2 or 3. Each camper will be given a copy of a typical school lunch menu for a week. Ask the campers to listen or read a list of questions and then highlight their answer. When they are finished answering the questions, they will share two of their answers with their small group.

- ❖ Sample questions: What is your favorite food from the menu?; What is your least favorite food on the menu?; What are 2 foods from the vegetable group?; What are 2 foods from the protein group?; Which food would you want a second serving?

Activity (20 minutes):

In the same small groups, the campers will pack 2 brown bag lunches. One lunch will get a grade of “A” and the other would get a grade of “F.” To receive an “A” the lunch must have something from every food group and be a recommended portion of the food. The bag lunches that would receive a “F” would not have all food groups and the portion sizes would be either too big or too small. Each group is provided with a small grocery bag of food to use for the lunches. When the groups are finished packing their lunches, they present them to a staff member for a final “grade.”

Activity (40 minutes):

Each small group will prepare one item from a predetermined school lunch menu. The food preparation will be basic today including heating up canned/frozen vegetables, slicing fruit, assembling an entrée, etc. The foods are then set on a serving counter or a long table.

The campers line up at the counter, take a lunch tray, and go through the lunch line choosing what they want and how much. A mixed group of camp staff and campers serves the lunch and provides feedback regarding the choices.

After going through the lunch line, the campers and staff sit at tables. To help create a realistic setting, one staff members will have a bag lunch that received a grade of “F” and one staff member will have a bag lunch that received a grade of “A.” Table conversation could include a discussion about what everyone chose, how the food was prepared, and what foods they would trade with their peers.

Cool down (30 minutes): On the last day of camp, there will be a Food Detective Party. Each day the campers will help prepare for that activity by working in small groups to select a food, complete the food facts worksheet, and add items to the grocery shopping list. Campers can use the written resources provided. Throughout the camp, campers will receive copies of the recipes and handouts of nutritional information. Each day time is set aside to assemble the papers into their own cookbook.

Supplies:

School clothes, backpack
School lunch menu examples
Highlighter pens
Brown paper bags
Food for lunches

RECIPES

Bag lunch ingredients:

Apples
Fruit cups
Potato chips
Baby carrots
Candy bars
String cheese
Juice boxes
White bread
Wheat bread
Turkey
Bologna
Mayonnaise
Butter
Pre-packaged desserts

Lunch Line Ingredients:

Cooked beans
Chicken nuggets (pre-made or make your own)
Canned fruit
Animal crackers
Baby carrots
Milk
Variety of condiments

RESOURCES

Yoga

Buckley, A. (2003). *The KIDS' yoga deck*. San Francisco: Chronicle

Books.

Sumar, S. (1998). *Yoga for the special child*. Buckingham, VA: Special

Yoga Publications.

Physioball Exercises

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Champaign, IL: Human Kinetics.

DAY 4

❖ **Get Moving!**

❖ **Sit Down Snacks**

❖ **Cool Moves for Summer**

Hour 1

Get Moving!

Warm-up (10 minutes):

Play a variety of fun music while the campers complete exercises including stretches, jumping jacks, play catch or passing games using weighted balls.

Activity (40 minutes- 8 minutes at each station): Cardiovascular stations

When the campers arrive at the stations, the camp staff will explain and demonstrate the activity. Staff will also assist campers in determining how to adapt the activity for their physical needs. The stations can be modified according to the equipment available.

- ❖ Jump ropes- Campers will practice jumping rope 2 minutes.
- ❖ Then, they will jump rope for intervals of 30 seconds, 45 seconds, 1 minute, 45 seconds, and 30 seconds.
- ❖ Treadmill- Campers will walk on the treadmill for 2 minutes and then measure their heart rate using a heart rate monitor. While the campers are waiting for their turn they can measure their resting heart rate, run the stopwatch to measure 2 minutes, or cheer on their peers. An exercise bike could be substituted if need be.
- ❖ Stairs- Campers will go up and down a staircase for 2 minutes and then measure their heart rate by feeling for their pulse. If stairs are not available, use aerobic “steps.”
- ❖ Pull-ups/push-ups- The campers take turns doing pull-ups using a pull-up bar mounted in a door way. While they are waiting for their turn, they will do floor push-ups and wall push-ups.
- ❖ Walking- The campers walk for 5 minutes wearing pedometers. When the time is up, staff will record how many step they walked.

Cool Down (10 minutes): Stretches and basic yoga poses.

Supplies:

Weighted balls
CD Player
Music
Jump ropes

Staircase
Pull-up bar
Pedometers
Heart rate monitor

Yoga mats
Treadmill/exercise bike

Hour 2 - 3

Sit Down Snacks

Warm-up (30 minutes): Instruction on reading food labels and the importance of eating snacks sitting down (helps with portion control).

Activity (45 minutes): Divide the campers into two groups and each group makes a snack.

Cool-down (30 minutes): On the last day of camp, there will be a Food Detective Party. Each day the campers will help prepare for that activity by working in small groups to select a food, complete the food facts worksheet, and add items to the grocery shopping list. Campers can use the written resources provided.

Throughout the camp, campers will receive copies of the recipes and handouts of nutritional information. Each day time is set aside to assemble the papers into their own cookbook.

Break (15 minutes): Get a drink of water, play an active game while waiting for the next activity.

Supplies:

A variety of snack food containers to work on reading food labels

Recipe ingredients

Plates

Food detective sheets

Cookbooks

Hour 4

Cool Moves for Summer

This hour consists of rotating between 3 activity stations. The total allotted time is 60 minutes.

Activity 1 (20 minutes): Riding Equipment

Campers will go to a gym area or outside to use riding equipment. The equipment includes scooters, bikes, skateboards, roller skates, and roller racer scooters. If there is a playground available, the campers could play on the equipment or play playground games (i.e. hopscotch, tag) while waiting for a turn on a riding toy.

Activity 2 (20 minutes):

Campers will go to an indoor area and use the interactive dance video game (such as *Dance Dance Revolution*) to demonstrate available games that require physical movement. Each camper completes 2 dance sequences. While the one camper is doing the dance steps on the dance pad, the other campers are following along and practicing the dance steps or jogging in place. At the end of the time at the station, the staff member will demonstrate alternate body positions that can be used during computer/video games/watching television. These positions work on strengthening of the core muscles and stretching.

Activity 3 (20 minutes): Campers will complete an obstacle course that consists of a shuttle run, dribbling a ball between cones, and hopscotch using hoops/sidewalk chalk to form the pattern. Campers help time each other using a stopwatch and record the times to look for improvement.

Supplies:

Activity 1:

Scooters
Bikes
Roller skates/roller blades
Roller racer scooters
Skateboards

Activity 2:

Playstation 2 or Xbox
1 or 2 dance pads
Dance Dance Revolution
Television

Activity 3:

Cones
Basketball
Hoops/sidewalk chalk
Beanbag (“shuttle”)
Stopwatch

RECIPES

Choco-Nana Dream

Serves 2 people

- 1 cup low-fat chocolate milk
- 1 ripe banana
- 1 cup chocolate or vanilla low-fat frozen yogurt
- 1 tablespoon chocolate syrup

Step 1:

Peel banana and break into chunks. Place chunks in blender cup.

Step 2:

Add milk, yogurt, and chocolate syrup.

Step 3:

Cover and blend until smooth. Serve in a tall glass.

Gorilla Granola

Makes 16 one-half cup servings

- 4 cups dried granola cereal or other cereal
- 1 cup dried apricots
- ¼ to ½ cup shredded coconut (optional)
- 1 cup raisins
- 1 cup peanuts
- ½ to ¾ cup chocolate covered candies (optional)

Step 1:

Mix together in a large bowl.

Step 2:

Store in an airtight container to keep fresh.

RESOURCES

Yoga

Buckley, A. (2003). *The KIDS' yoga deck*. San Francisco: Chronicle Books.

Sumar, S. (1998). *Yoga for the special child*. Buckingham, VA: Special Yoga Publications.

Physioball Exercises

Ball exercise chart from Fitter First: www.fitter1.com

Spalding, A., Kelly, L., Santopietro, J., Posner-Mayer, J. (1999).
Champaign, IL: Human Kinetics.

Recipes

Michigan State University Extension:

<http://msue.stclaircounty.org/Family/FoodNutritionHealth.htm>

DAY 5

❖ **Pool Play**

❖ **Food Finding**

❖ **Set for Supper**

Hour 1 – 1 ½

Pool Play

Warm-up (15 – 30 minutes):

Transport (van or walking if possible) to public swimming pool and park.

Activity (45 minutes):

Swim laps, dive for rings, game of tag, treading water

Cool-down (15-30 minutes): Transport to grocery store

Supplies:

Swimsuits

Towels

Sunscreen

Flotation devices

Rings

Hour 1 1/2 - 3

Food Finding

Activity (90 minutes): Go to a local grocery store and shop for items for the Food Detective Party using the grocery lists that the campers compiled. Use the opportunities at the grocery store to look at food labels, discuss food selection, and compare prices.

Supplies:

Food Detective Grocery List

Hour 4

Set for Supper

Warm-up (10 minutes): The campers will make a placemat that shows where each food group goes.

Activity (45 minutes): Campers will make and set up an entire evening meal by dividing up the duties. They will use their new placemats to help cue them on food groups and portions. The meal will be served family style and the campers will use measuring cups to dish up their plates.

Cool-down (5 minutes): Compile cook books.

Supplies:

Construction paper

Markers

Scissors

Plates

Silverware

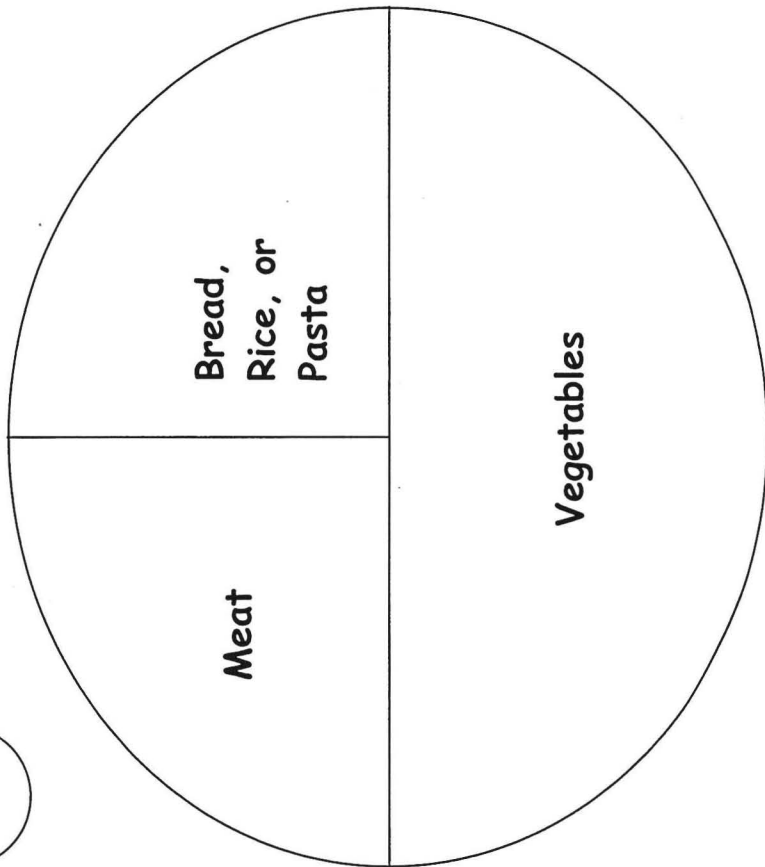
Cups

Recipe ingredients

Set of measuring cups

Milk

Fruit



Portion Placemat

RECIPE

Pizza

Makes 4 single-serving pizzas.

You will need:

- 2 large cookie sheets
- Non-stick cooking spray
- 2 loaves of frozen bread dough, thawed overnight in the refrigerator, inside the bag
- 2-4 tablespoons spaghetti or pizza sauce per pizza
- Healthy toppings for pizza i.e.: shredded cheese (low-fat is best), chopped veggies (any kind), drained canned pineapple or beans, and low-fat deli meats

To prepare the pizzas:

- Divide the frozen bread dough into 4 equal parts (each one will be one pizza).
- Roll or pat each part into a 9 inch circle that is about ½ inch thick.
- Spray cookie sheets with non-stick cooking spray.
- Place dough circles on each cookie sheet.
- Spread a thin layer of pizza or spaghetti sauce over the unbaked dough circles.
- Fill small bowls or plates with pizza toppings, and let family members decorate their own pizzas using the toppings.
- Bake at 375 degrees in the oven for 20-30 minutes or until the crust is done. Remove from oven and let cool 5 minutes before cutting.

DAY 6

- ❖ Finish Line!
- ❖ Basketball on Wheels
- ❖ Family Food Detectives

Hour 1

Finish Line!

Activity (45 minutes): Screening Stations (10 minutes/station; 5 minutes to account for rotating)

Campers rotate through the four stations and staff fills in the screening form.

5. Flexibility:
6. Strength
7. Balance
8. Strength/Endurance

Cool-down (15 minutes): Get a drink of water; play an active game while waiting for the next activity.

Supplies:

Screening form (from Day 1)

Pens

Access to stairs

Stopwatch

Heart rate monitor

Hour 2

Basketball on Wheels

Warm-up (10 minutes): Core strength with physioballs and exercise bands

Activity (30 minutes): Basketball in wheelchairs, blindfolded, shooting drills

Cool Down (10 minutes): Stretches/yoga

Supplies:

Basketball hoops

Wheelchairs/office chairs/rolling stools

Bandanas (blindfolds)

Yoga mats

Exercise bands

Physioballs

Hour 3 - 4

Family Food Detectives

Warm-up (30 minutes): Campers prepare the foods and Food Fact displays for the Food Detective Party.

Warm-up (15 minutes): Campers show their recipe books of recipes collected throughout the camp sessions. Each camper says their favorite food and one thing they learned about food.

Activity (45 minutes): Campers and their families go around the room and get one food item from each station. They will then sit down at a table and complete the food detective form together. The food items will be representative of all food groups and include a variety of foods. Each food item will have a display detailing the name of the food, food group, serving size, and what season it is available.

Cool-down (30 minutes): Campers each act out their favorite camp sport/exercise and say one exercise they plan to do twice a week. Present certificates to campers for categories such as the most improved, willing to try, and camp spirit. Campers and parents complete a satisfaction survey.

Supplies:

Variety of foods

Food detective forms

Food fact displays

Completed recipe books

Certificates

Satisfaction surveys

Pens

RESOURCES

Yoga

Buckley, A. (2003). *The KIDS' yoga deck*. San Francisco: Chronicle

Books.

Sumar, S. (1998). *Yoga for the special child*. Buckingham, VA: Special

Yoga Publications.

Physioball Exercises

Ball exercise chart from Fitter First: www.fitter1.com

Spalding, A., Kelly, L., Santopietro, J., Posner-Mayer, J. (1999).

Champaign, IL: Human Kinetics.

CAMPER COMMENTS

1. What was the most fun at camp?

2. What activities/sports from camp would you like to do at home or school to stay active?

3. What did you learn about good eating habits?

4. Did you feel like you were in better shape after the camp?

PARENT SATISFACTION SURVEY

1. What did your child learn about healthy eating habits?

2. Did you find the written materials about nutrition information helpful?

3. What active leisure skills did your child develop?

4. Would you recommend attendance at this camp to a friend?

Comments:

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from <http://www.state.sd.us/doh/schoolweight>

CHAPTER V

SUMMARY

The product developed for this project is a handbook that serves as a comprehensive resource for implementing a wellness camp for children with obesity. The handbook was designed to be an easy to use resource for multi-disciplinary teams of healthcare professionals to use in their communities. The multi-faceted curriculum included in the handbook takes a fun, community based approach to making healthy food choices and choosing active leisure options. The handbook provides detailed descriptions of the structure of the camp, staff roles, goals of the camp, and adaptations for different populations. The handbook is divided into six sections. Each section contains all the information and forms needed to run each one of the four hour camp sessions. At the back of the handbook there are survey forms designed to be completed by campers and parents at the conclusion of the camp.

This product is limited by the fact that it has not yet been implemented and no data has been collected on the effectiveness of this type of experience to facilitate weight loss and fitness.

The author recommends that the wellness camp be implemented at CCHS incorporating the curriculum using a multi-disciplinary team approach. There will be data collected at the beginning and the end of the camp including heart rate, strength, endurance, balance, body mass index, and flexibility. The results will be analyzed to determine the areas in which the campers demonstrated the most gain. As the camp

progresses, the data results could be used to enhance research on approaches for children with obesity. Upon completion of the camp, both campers and their families will complete satisfaction surveys regarding the curriculum of the camp. The data from the surveys will be compiled to aid with future program planning and obtaining grant funding.

Following the experience of implementing the camp at CCHS, the camp team may wish to make revisions to the content, time frames, and forms based pm data collected during and after the camping experience. The budget and marketing plans may also need revisions according to what was successful and what needed improvement.

It is also recommended that the wellness camp team at CCHS explore partnerships with other organizations within the community of Sioux Falls and throughout the state of South Dakota. This would be beneficial for identifying children who could benefit from the camp, obtaining supplies, and providing additional activity opportunities.

The majority of the state of South Dakota is considered a rural setting with significant travel distances between larger towns, therefore, holding the camps in the smaller communities will increase accessibility. It is beneficial to long term carryover of lifestyle changes for the campers and their families to become familiar with their own community environment. Based on their experiences with a successful implementation of the camp, the camp staff could provide workshops to other health care teams for holding camps in various communities. The money earned from the workshops would be used toward scholarships for campers to attend the *Living Right! Morning, Noon, and Night: Wellness Camp for Kids*.

APPENDIX

**“Livin’ Right! Morning, Noon, and Night:
Wellness Camp for Kids**

Budget Plan

Overview: This camp is being offered by Children’s Care Hospital and School (CCHS), a non-profit organization that serves children with special needs and their families. The proposed camp will involve six sessions that are four hours in length. The camp fee will be \$75 per camper. The actual cost of the camp is \$150 per camper. CCHS is willing to hold the initial camp at a lower cost in order to increase awareness of the camp and it’s content. For the initial year, CCHS would hold the camp with a minimum of 5 campers and a maximum of 15 campers. The insurance, equipment, and supply costs would be adjusted to reflect a smaller number of campers.

Since the camp is under the umbrella of CCHS, the majority of the equipment, facilities, and personnel are already present. An attempt to estimate a breakdown of costs is included in these worksheets. Equivalent services/facilities were considered in establishing an estimated amount. Consultation took place with the Director of Rehabilitation Services and the Chief Financial Officer of CCHS regarding the distribution of costs.

Start-up Capital Requirements

| Start-up Expenses | Amount | Description |
|--|---------------|---|
| Marketing | 250 | Promotion for the camp (printing costs, bulk mailing, advertising) |
| Professional fees | 250 | Planning meetings with CCHS therapists, dietary, accounting and marketing present |
| Financial Administration | 30 | (CCHS accounting consultation- camp fee paid up front so no collection services needed) |
| Professional fees/licenses & Benefits (\$10x3 staff) | 30 | Includes an amount for the unexpected |
| Education | 100 | workshop attendance by therapist on a camp-related topic |
| Total Start-up Costs | \$660 | <i>Amount of costs before opening</i> |

Operating Costs Work Sheet

This camp will be held one time per year initially. The costs should remain constant from year to year. There may be a slight increase in the area of salaries due to cost of living increases. However, there may be a decrease in expenses such as marketing, education, and clinical supplies.

| General Fixed Expenses | Costs |
|---|---------------|
| Insurance (\$5/participant) | 75 |
| Clinical salaries (\$30/hr x 15 hours x 3 staff) | 1350 |
| Benefits, professional fees/licenses (\$10x3 staff) | 30 |
| <u>General Variable Expenses</u> | |
| Marketing | 250 |
| Clinical supplies (Food, education materials, t-shirts) Food= \$3/participant x 6 sessions x 18 participants (15 campers, 3 staff) | 500 |
| Education (workshop attendance by therapist on a camp-related topic) | 100 |
| Miscellaneous | 50 |
| <u>General Purchase Expenses</u> | |
| | \$2355 |

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