

ABSTRACT

SMITH, MILLAGE ZACHARY. Parental Influences on the Physical Activity Behavior of Children of Various Ethnic Backgrounds. (Under the direction of Dr. Laura Burton and Dr. Edwin Lindsay.)

Childhood overweight is a serious public health concern. Approximately 15% of adolescents and children ages 6-19 are overweight. Promoting physical activity is one key in fighting the obesity epidemic. The purpose of this study was to explore parental influences on the physical activity behavior of children of various ethnic backgrounds and of low socioeconomic status. Although the majority of the children self-identified as Black or African American, the full sample was considered to be children of various ethnic backgrounds since there was representation from other ethnic groups. This effort addressed the void of ethnically diverse youth physical activity research.

Using the Youth Physical Activity Promotion Model as a theoretical framework (Welk, 1999), direct and indirect parental influences were investigated. Four specific parental influencing strategies including role modeling, encouragement, involvement, and facilitation were also examined. This study replicated a previous study by Welk, Wood, and Morss (2003). The survey administered combined the Physical Activity Questionnaire for Children (Kowalski, Crocker, & Faulkner, 1997), the Children's Attraction to Physical Activity scale (Brustad, 1993, 1996), the perceived athletic competence scale from the Self-Perception Profile for Children (Harter, 1985), and a series of parental influence measures designed by Welk et al. (2003).

Parents in this sample influence children's physical activity behavior both directly and indirectly. Parental support strategies other than role modeling were found to significantly predict physical activity, perceived athletic competence, and attraction to

physical activity. There was evidence that suggested the general measure of physical activity and the measure of perceived competence introduced cultural bias and therefore did not fully capture the experiences of the children in this sample. The access and opportunities available to this sample may also affect the choices parents make in how they influence children's physical activity behavior. With knowledge of the results of this study, professionals committed to promoting physical activity in children can more effectively educate and involve parents, create culturally sensitive environments for participation, and recognize the multiple determinants in children's physical activity participation in order to deliver comprehensive programs.

**PARENTAL INFLUENCES ON THE PHYSICAL ACTIVITY BEHAVIOR OF
CHILDREN OF VARIOUS ETHNIC BACKGROUNDS**

by
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BIOGRAPHY

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Introduction

Obesity has reached epidemic proportions in the United States. Weight is no longer a private matter; it is a serious public health concern. The U.S. Department of Health and Human Services (2000) recently released *Healthy People 2010*. The document included health objectives for the nation to reach by the year 2010, along with high priority areas that need increased public attention. Physical activity was the first leading area, with obesity and overweight as second (HHS, 2000). The scientific community, popular media sources, schools, communities, worksites, and governments are rallying to get people healthy.

Childhood overweight is of particular concern. Approximately 15% of adolescents and children ages 6-19 are overweight (National Center for Health Statistics, n.d.). In the last two decades there has been over a twofold increase in the percentage of children who are overweight. The percentage of adolescents who are overweight has tripled (HHS, 2001). Health consequences that plague overweight adults are now affecting children at younger ages. The increased prevalence of type 2 diabetes in youth is alarming, and children are also experiencing problems with hypertension, high blood lipids, orthopedic ailments and social discrimination (HHS, 2001). Overweight youth are also at risk to become overweight adults, increasing their risk for premature death and additional health consequences at earlier ages (National Center for Health Statistics, n.d.).

For most individuals, overweight and obesity stem from unhealthy lifestyle choices. Excess calorie consumption and lack of physical activity are the two primary factors, with genetics and sociological influences also playing a role (HHS, 2001). Overweight results from an imbalance between energy intake and energy expenditure (Federal Interagency Forum on Child and Family Statistics, 2003). Increasing physical activity increases energy

expenditure and is one key in preventing and managing childhood overweight. Only about 50% of youth ages 12-21 participate in regular, vigorous physical activity that makes them sweat or increases their heart rates (HHS, 2001). The statistics are even lower for adult physical activity participation (HHS, 2001).

Promoting physical activity is complex because there are many factors that either encourage or inhibit participation (Welk, 1999). Physical activity studies support that demographics, psychological characteristics, sociological or cultural characteristics, and environmental factors can all affect whether or not a child participates in regular physical activity (Welk, 1999). In a 1999 article, Welk released the development of the Youth Physical Activity Promotion Model (YPAP), which synthesizes current research findings and explains physical activity behavior in youth. The model uses an ecological approach, which explains behavior through multiple layers of influence and interactions between the child and his or her environment (Welk, 1999). Using the ecological approach to understanding behavior is now becoming more widely accepted since physical activity participation is multidimensional (Welk, Wood, & Morss, 2003).

According to the YPAP model, parents play a large role in the development of physically active lifestyles in youth (Welk, 1999). Although studies show that parents' roles are significant, the strategies through which they influence their children are not as clear (Welk et al., 2003). Physical activity studies have revealed a range of successful parental influencing strategies such as direct role modeling, encouragement, parental beliefs about physical activity, and parental involvement in physically active pursuits (Welk, 1999; Welk, et al., 2003). It is important to more clearly define the ways in which parents influence their children to more accurately guide the promotion of healthy lifestyles in families (Welk et al.,

2003). Children and their families making healthier choices and increasing physical activity will aid in addressing the problem of childhood overweight.

The experiences of children of various ethnic backgrounds are rarely explored in youth physical activity studies. Research thus far has mainly focused on White, middle to upper class, suburban youth, therefore limiting the generalization of findings (Brustad, 1996; Welk, 1999). Reports also suggest ethnic health disparities exist in the prevalence of overweight and physical inactivity. Black and Hispanic children are at a slightly higher risk for overweight than White children (Crawford, Story, Wang, Ritchie, & Sabry, 2001; HHS, 2001; HHS, 2002). Although it is not as clear for men and children, risk for overweight increases with lower socioeconomic status in women (HHS, 2001). Socioeconomic status and cultural beliefs about physical activity also appear to be connected (Airhihenbuwa, Kumanyika, Agurs, & Lowe, 1995). A review by Taylor & Sallis (1997) showed that studies have found White children are more active than non-White children of the same age (as cited in Sallis et al., 1998).

Significance of the Study

This study replicated a study by Welk et al. (2003) regarding parental influences on physical activity in children. Although the sample used by Welk et al. (2003) was mostly Caucasian (68%), the experiences of African American children were explored in the current study to help address the void of ethnically diverse youth physical activity research and add to the general body of knowledge in this area. The findings of this study suggested information that can help guide the promotion of physical activity in youth for this specific population.

Statement of the Problem

Childhood overweight has reached epidemic proportions and statistics suggest that Black and Hispanic children are at an increased risk for overweight and physical inactivity. Research can help in developing effective strategies to promote physically active lifestyles. Studies have shown that parents can influence the physical activity behavior in children, but the specific influencing strategies are less clear. The majority of studies to date have researched White children from middle to upper class families. The purpose of this study is to explore parental influencing strategies on physical activity behavior in children of various ethnic backgrounds.

Research Questions

1. Do parents directly influence the physical activity behavior of children of various ethnic backgrounds?
2. Do parents indirectly influence the physical activity behavior of children of various ethnic backgrounds through affecting children's attraction to physical activity and perceived athletic competence?
3. Are role modeling, encouragement, involvement, and facilitation specific parental influencing strategies that are significant in predicting the physical activity behavior of children of various ethnic backgrounds?

Limitations

In order to collect data on a sample of multi-ethnic children, purposive sampling was used in selecting schools. Two charter schools in the Raleigh/Durham, North Carolina area were chosen due to the high enrollment of African American students from low to middle socioeconomic status. Since the sample included third through sixth grade students at these

specific locations, findings may not be readily generalized to other populations. Purposive sampling was seen as an appropriate research design, since the focus of this study was exploratory. Much of the current research on physical activity in children does not examine the specific experiences of various cultures.

Once the schools were chosen, parental consent forms were sent to all parents with children in the third through sixth grades. With this self-selection, children whose parents were interested in physical activity may have been overrepresented. There was a small, free gift incentive of North Carolina State University pencils, which may have encouraged the children to have their parents sign the form, no matter their interest in physical activity. One school also had a high response rate, so overrepresentation was most likely not the case.

In youth physical activity research, self-report measures are most commonly used but there is a constant debate about their effectiveness (Troost et al., 2000). Children's recall abilities are often limited and socially desirable answers are common (Troost et al., 2000). Although a self-report instrument was used in this study, precautions were taken to reduce these problems. Instructions and questions were read aloud to younger participants and Harter's (1982, 1985) structured alternative format was used to reduce socially desirable responses.

General levels of physical activity are difficult to measure in any child (Brustad, 1991; Troost et al., 2000). Since little research has examined the unique experiences of children of various ethnic backgrounds, it is unknown if current scales are culturally sensitive. The scales used in this study have been previously validated on primarily Caucasian samples. A potential limitation is the inability of these scales to capture the entire physical activity experiences of children from various cultures.

Literature Review

Unhealthy eating habits and physical inactivity are two major contributors to the epidemic of overweight and obesity. The prevalence of overweight children in the United States is alarming, but studies have shown that parents can influence their children's physical activity behavior. With ethnic health disparities existing in the prevalence of childhood overweight and physical inactivity, the experiences of children of various ethnic backgrounds warrants examination. A review of the literature pertaining to this subject follows. Areas of discussion include the current status of overweight and physical inactivity, physical activity promotion, and parental influence on children's physical activity behavior.

The Current Status of Overweight and Physical Inactivity

Overweight and Obesity

Body mass index (BMI), is most commonly used to identify overweight and obesity. BMI is a ratio of weight to height and is significantly correlated with the total body fat of most individuals (U.S. Department of Health and Human Services [HHS], 2001). Adults with a BMI between 25-29.9 are considered overweight, while individuals with a BMI of 30 or above are considered obese (HHS, 2001). Growth charts released from the Centers for Disease Control and Prevention [CDC] are used to classify children. It is commonly accepted that children with a sex and age specific BMI in the 85th-95th percentile are at risk for overweight and children with a BMI above the 95th percentile are overweight (Goran, 2001; HHS, 2001).

The health consequences of overweight and obesity are rarely disputed. The risk for death increases with an increasing body mass index, most significantly after a BMI of 30 for adults is reached. Approximately 300,000 deaths occur each year that may be attributable to

obesity. Tobacco use is the only behavior that kills more people and the health consequences related to obesity are rapidly increasing and approaching this statistic (HHS, 2001).

Overweight and obesity are also associated with an increased risk for coronary heart disease, various cancers, stroke, hypertension, sleep apnea, breathing problems, high cholesterol, and psychological disorders (HHS, 2001).

Adverse health effects are also experienced in overweight children and adolescents. The most alarming effect is the dramatic increase in the prevalence of type 2 diabetes, which is linked to obesity and physical inactivity (HHS, 2004). Type 2, or non-insulin dependent diabetes was formally found primarily in adults over the age of 40 (HHS, 2004). Currently the disease is appearing at increasing rates in youth (Goran, 2001; HHS, 2004). There are severe health consequences of diabetes, including eye disease and blindness, kidney disease, amputations, cardiovascular disease, pregnancy complications, and flu and pneumonia related deaths (HHS, 2004). Overweight youth can also experience high blood lipids, hypertension, orthopedic problems, and social discrimination (HHS, 2001).

According to the National Health and Nutrition Examination Survey 1999-2000 report, obesity has been increasing in every state in the nation since the 1976-1980 report (HHS, 2001). Of particular concern is the more than twofold increase over the last two decades in the percentage of children who are overweight (HHS, 2001). The percentage of adolescents who are overweight has almost tripled (HHS, 2001). The most recent estimate is that 15% of adolescents and children ages 6-19 are overweight (National Center for Health Statistics, n.d.). Overweight youth are at an increased risk to become overweight adults (NCHS, n.d.). More specifically, overweight adolescents have a 70% chance of becoming

overweight adults. This risk increases to 80% if one or more parent is overweight or obese (HHS, 2001).

Ethnic and socioeconomic status health disparities.

An additional concern is that people of color and those with a lower family income are at an increased risk for overweight and obesity (HHS, 2001). Among women of diverse racial and ethnic groups, the prevalence of obesity and overweight is higher than non-Hispanic White women (HHS, 2001). The National Health and Nutrition Examination Survey III (NHANES III) showed a similar trend for girls (Crawford et al., 2001; HHS, 2001). Non-Hispanic Black girls tended to have a higher prevalence of overweight compared to non-Hispanic White and Mexican American girls (HHS, 2001). Data from the National Heart, Lung, and Blood Institute Growth and Health Study on overweight children also showed similarities, reporting a higher mean BMI for Black girls compared to White girls of the same age (HHS, 2001). For boys, the NHANES III data showed that the prevalence of overweight in non-Hispanic Blacks was slightly greater than non-Hispanic Whites but lower than Mexican Americans (Crawford et al., 2001; HHS, 2001). Data from the 2001 Youth Risk Behavior Surveillance System (YRBSS) showed that Black and Hispanic high school students were significantly more likely than White high school students to be at risk for becoming overweight (HHS, 2002).

The prevalence of overweight and obesity has also been found to be different for women based on socioeconomic status. Women of lower socioeconomic status are approximately 50% more likely to be obese compared to those of higher socioeconomic status, over all racial and ethnic groups combined (HHS, 2001). For men, socioeconomic status does not appear to affect the prevalence of obesity. The effect of socioeconomic status

on the prevalence of overweight in children is less clear (HHS, 2001). Family income does not provide a clear, consistent correlation to the prevalence of overweight in children (HHS, 2001).

Race, ethnicity, and socioeconomic status in research.

Potential problems can arise when examining race, ethnicity, and socioeconomic status in research. Senior and Bhopal (1994) defined ethnicity as a “socially constructed phenomenon” and further elaborated on the concept as follows:

The concept of ethnicity is neither simple nor precise, but it implies one or more of the following: shared origins or social background; shared culture and traditions that are distinctive, maintained between generations, and lead to a sense of identity and group; and a common language or religious tradition. (p. 327)

Since ethnicity is culturally determined, race should not be seen as a synonymous term (Senior & Bhopal, 1994). Race is a part of culture and ethnicity but it implies biological features, or characteristics that are genetically determined (Duda & Hayashi, 1998; Senior & Bhopal, 1994). Although ethnicity is often measured by skin color, this method can be unreliable since two people with the same ethnic background can have differing skin color, or vice versa (Senior & Bhopal, 1994). Socioeconomic status is another confounding variable since there may be various ethnic differences in groups of the same social class (Senior & Bhopal, 1994). Heterogeneity within ethnic groups is reason enough to avoid over generalizing findings using broad ethnic and racial categories (Senior & Bhopal, 1994).

With the difficulty in separating race, ethnicity, and socioeconomic status, it is up to the individual researcher to define these variables specific to the study in discussion. Since ethnicity is also difficult to measure, it is acceptable to ask respondents to self-select their

racial or ethnic group membership, since there is an “emerging view that ethnicity is fundamentally a matter of self-perception” (Senior & Bhopal, 1994, p. 328). This type of self-selection classification is used in the United States census (Senior & Bhopal, 1994).

Potential explanations for health disparities.

There are several suggestions for explaining the increased risk and prevalence of overweight in children of various ethnic backgrounds with low socioeconomic status. There is a high prevalence of obesity among women of color, which is positively correlated with high birth weight for their children (Kumanyika, 1993). High birth weight is positively correlated with high adiposity levels in infants and preschool children (Kumanyika, 1993). Another potential explanation is the availability of unhealthy foods. Children living in poor socioeconomic conditions have an increased access to calorie-dense foods. Consuming these foods instead of healthier, more balanced alternatives could lead to overweight (Kumanyika, 1993).

Perceptions of appropriate body image could also be contributing to the prevalence of overweight in various ethnic groups. In low socioeconomic groups, thinness is often seen as a sign of poverty (Kumanyika, 1993). A similar view is held in traditional African societies where full figured bodies are symbols of prosperity and wealth (Villarosa, 1994). There is also some evidence that shows that Black Americans do not prescribe to the unrealistically thin, White American, ideal body type (Abood & Mason, 1997; Altabe, 1998; Duncan & Robinson, 2004; Milkie, 1999; Villarosa, 1994). Thinness may not be as important in the Black American culture, potentially making overweight or obesity more acceptable (Abood & Mason, 1997; Altabe, 1998; Duncan & Robinson, 2004; Milkie, 1999; Villarosa, 1994). Additional weight may be considered “normative in the social and family environments” of

children of color (Kumanyika, 1993, p. 87). With the increase in public awareness of the health consequences of overweight, there is some preliminary evidence that Black American women reject the overly thin White American ideal but also understand that a fuller figure can lead to negative outcomes (Duncan & Robinson, 2004).

Physical Inactivity

Both children and adults need to make healthier eating choices and increase physical activity levels to combat and prevent overweight (HHS, 1996). Inactivity is defined as "not engaging in any regular pattern of physical activity beyond daily functioning" (HHS, n.d.). American society has become very sedentary, encouraging inactive lifestyles. As children age and move through the adolescent years, they become increasingly inactive (HHS, 2001).

Physical activity is defined as "any bodily movement produced by skeletal muscles that results in the expenditure of energy" (US Department of Health and Human Services, n.d.). Physical activities can be structured, like participating in organized sport, or unstructured, like after school play (Brustad, 1993). Moderate physical activities can include mowing the lawn, gardening, dancing, walking, playing touch football, washing the car, raking, shoveling snow, or walking stairs. More vigorous physical activity may include chopping wood, participation in high-impact aerobics, swimming continuous laps, bicycling uphill, or running (HHS, n.d.). Physical activity can be incorporated into daily life experiences and does not need to always occur in a gym (HHS, 1996). The recommendation for adults is to accumulate at least 30 minutes of moderate intensity physical activity on most, if not all, days of the week (HHS, 2001). Children should be accumulating 60 minutes of activity daily (HHS, 2001). It is important to note that even greater amounts of activity may need to be accumulated to attain weight loss (HHS, 2001).

Only about 50% of U.S. youth ages 12-21 regularly engage in vigorous physical activity (HHS, 1996). In 1999, data showed that more than one in three high school students do not regularly participate in vigorous physical activity (HHS & U.S. Department of Education, 2000). Approximately 25% of U.S. adults report that they do not participate in leisure time physical activity (HHS, 1996).

Ethnic and socioeconomic health disparities.

Statistics suggest that physical inactivity is more common among Blacks and Hispanics in comparison to Whites (HHS, 1996). Inactivity is also more prevalent among individuals of lower socioeconomic status compared to higher socioeconomic status (HHS, 1996). Socioeconomic status and cultural beliefs about physical activity appear to be connected (Airhihenbuwa et al., 1995). Educational attainment and socioeconomic status have been found to be associated with physical activity in adults, but the relationship is less evident in children (Kohl & Hobbs, 1998). In the 2001 YRBSS data, White high school students reported significantly more participation in vigorous physical activity compared to Hispanic and Black students (HHS, 2002). In the same survey data, Black and Hispanic students reported watching more hours of television per day compared to White students (HHS, 2002). In a review by Taylor and Sallis (1997), multiple studies were found to show associations between ethnicity and physical activity (as cited in Sallis et al., 1998). The relationship between physical activity and socioeconomic status did not appear consistent (as cited in Sallis et al., 1998). Three of the studies included in the review showed White children to be more active than non-White children of the same age (as cited in Sallis et al., 1998).

It also appears that ethnicity impacts activity preference. Gottlieb and Chen (1985) found that White children were more likely to participate in individual, non-competitive activities while Blacks and Mexican Americans were more likely to be involved in competitive team sports. Kohl and Hobbs (1997) reported a similar finding in their review that White youth were more likely to choose individual, non-competitive activities and Black youth were more likely to report participation in competitive team sports. Although both are engaging in some type of physical activity, this finding can lead to potential problems if lifelong, aerobic physical activity habits are not being developed at young ages (Gottlieb & Chen, 1985). Airhihenbuwa et al. (1995) interviewed African American focus groups and found that African Americans preferred more social activities like dancing and playing ball and Whites preferred more individualistic activities such as running. In a study of African American and Hispanic middle school girls, Taylor et al. (1999) made the following suggestion: “Cultural and ethnic identity may be related to unique determinants of physical activity in girls of color. Body image, weight control practices, and activity preferences can have distinct ethnic and cultural underpinnings” (p. 79).

Barriers to participation.

Removing barriers to more effectively enable physical activity participation is a public health goal for all children across all ethnic and cultural backgrounds (HHS, 1996; HHS, 2000). Trost et al. (1999) found physical activity determinants to be similar for African American youth compared to studies of other youth, but stated that the potential for cultural influences on determinants and barriers still cannot be overlooked. Safe accessibility to areas for physical activity, teaching values about the health importance of regular activity, and having positive, active role models are important for removing barriers for African American

youth (Trost et al., 1999). Other barriers existed for African American and Latino girls including disliking physical education classes, feeling discouraged to participate even when they did have some interest in the activity, perceiving that exercise interfered with appearance, and experiencing a general lack of opportunity (Flores, 1995; Taylor et al., 1999).

Physical Activity Promotion

Developmental Considerations

Promoting regular physical activity is key in the prevention of childhood overweight. In addition, since physical activity tracks through the lifespan, it is beneficial to promote interest and involvement at a young age to prevent obesity in the future (Welk, 1999). Many studies in this area have taken models developed for adults and applied them to children. It is inappropriate to assume that children and adults are influenced in the exact same way (Welk, 1999). To further understand determinants in children, it is important to first note fundamental differences that distinguish children from adults (Welk, 1999).

Children and adults have distinctive cognitive capacities, which allow them to view participation in physical activity in different ways (Brustad, 1998). According to Piaget, the capacity to think in abstract terms does not appear until ages 12 and beyond (as cited in Welk, 1999). For this reason, children may not see long term health benefits or fitness as a reason for engaging in physical activity (Welk, 1999). They have limited ability to hypothesize about imaginary situations, since they operate in more concrete terms (Brustad, 1998). Children also lack the complex information processing skills of adults. Therefore, children often have difficulty in comprehending the differences between effort, ability, and task difficulty that combine to affect participation outcomes (Brustad, 1998). In addition,

Harter has discovered that the concept of the self changes over the lifespan (as cited in Brustad, 1998; Harter, 1982, 1985). Children do not perceive or describe themselves in the same manner as adults (Brustad, 1998). With the notable cognitive differences in children and adults, developmentally appropriate theories, models, and measurement tools need to be further developed and utilized in studying children's physical activity behavior (Brustad, 1998; Welk, 1999).

Multiple Determinants

In order to effectively promote physically active lifestyles, it must be recognized that there are many physical activity determinants that can encourage or inhibit participation (Brustad, 1991; Sallis, Prochaska, & Taylor, 2000). It is difficult to identify common determinants of physical activity in youth for three main reasons (Welk, 1999). First, measuring physical activity in children is difficult (Sallis et al., 2000; Welk, 1999). Due to ease of administration and low-cost, self-report questionnaires are used most often (Troost, Kerr, Ward, & Pate, 2001). Self-report techniques can have problems in measuring physical activity in children because recall abilities are more limited than adults or adolescents and there are few accurate and developmentally appropriate scales available (Welk, 1999). Other methods used to measure physical activity include direct observation, heart rate monitors, accelerometers or pedometers, and the doubly-labeled water technique (Troost et al., 2001). Different measurement techniques with varying accuracy can make it difficult to identify and compare common determinants of physical activity across studies (Troost et al., 2001; Welk, 1999).

Secondly, it is known that younger children's cognitive abilities differ than adolescents, but it is not completely known how these developmental effects determine

physical activity behavior (Welk, 1999). Most physical activity research has been conducted on older children, adolescents, and adults, and it is difficult to generalize these findings to younger children (Welk, 1999).

Lastly, many different theories have been applied to this area of research. The most common theories include the social cognitive approach, expectancy-value based approaches, achievement goal theory, competence motivation theory and mixed social learning theories (Brustad, Babkes, & Smith, 2001; Welk, 1999). In using various theoretical frameworks, physical activity determinants and variables are often operationalized differently, causing more confusion (Sallis et al., 2000).

In general, most physical activity studies support that there are personal, social, and environmental determinants for physical activity participation in youth (Sallis et al., 2000; Welk, 1999). Demographics are important, such as age and gender, along with biological characteristics such as BMI (Welk, 1999). Small amounts of genetic influences have also been found to predispose physical activity habits (Perusse, Tremblay, LeBlanc, & Bouchard, 1989). Psychological characteristics are common determinants, such as perceptions of competence, beliefs about activity, enjoyment of physical activity, self-efficacy and barriers to physical activity, and interest in activity (Welk, 1999). Sociological or cultural characteristics such as parental encouragement, role modeling, parental social support, and friend and family support are also key determinants (Welk, 1999). Finally, environmental characteristics such as access to facilities and equipment and availability of programs have also been found as determinants for children's participation in physical activity (Welk, 1999).

Sallis et al. (1992) suggested, "the term *determinants* should be more appropriately defined as *correlates*" (as cited in Welk, 1999, p. 9). Using the term *correlate* signifies there

is some type of relationship present, without assuming causality. Many physical activity correlates have reciprocal effects, therefore making it difficult to assign which caused the other to occur (Snyder & Purdy, 1982; Welk, 1999). The most commonly defined correlates, or determinants, in the research are self-efficacy, perceived competence, enjoyment, parental influence, and access to programs and equipment (Welk, 1999, p. 11). Since physical activity in youth is dependent on various correlates across many domains, studies support using ecological models to look at behavior (Sallis et al., 2000; Welk, 1999).

Ecological Theory

Ecological theory captures the multidimensionality of physical activity behavior (Sallis et al., 2000; Welk, 1999). Urie Bronfenbrenner (1977) coined the phrase "the ecology of human development", which he defined as:

The scientific study of the progressive, mutual accommodation, throughout the life span, between a growing human organism and the changing immediate environments in which it lives, as this process is affected by relations obtaining within and between these immediate settings, as well as the larger social contexts, both formal and informal, in which the settings are embedded. (p. 514)

Others have more recently applied the ecological approach to health promotion and physical activity (Dzewaltowski, 1997; Epstein, 1998; Henderson, et al., 2001; Henderson, & Estes, 2000; McLeroy, Bibeau, Steckler, & Glanz, 1988; Richard, Potvin, Kishchuk, Prlic, & Green, 1996; Welk, 1999).

Bronfenbrenner's ecological theory (1977) describes the formal and informal interactions between a developing child and the environments in which the child lives. These environments are both immediate and secondary (1977). The theory is best visualized as a

series of concentric circles (Figure 1, p. 31). The child is placed in the center, within the microsystem. The microsystem involves the complex relations between the child and his or her immediate settings. These are the interactions that happen on a daily basis, for example between the child and his or her family, school, or peers. Surrounding the microsystem is the mesosystem, which represents the interaction of the settings in the microsystem. A parent interacting with the child's school and his or her teachers is an example of a mesosystem interaction. The exosystem follows, which includes the social structures that do not specifically contain the child at all times but still have an effect on development. An example within the exosystem would be extended family members that the child sees on occasion, or the aspects of the parent's work environment that impact the family. The final concentric circle encompassing the others is the macrosystem. The macrosystem is fundamentally different than the other three systems and describes the big picture of culture, subculture, and economics. The contexts of the macrosystem affect the interactions in the child's life more indirectly (Bronfenbrenner, 1977). Ecological theory also supports the notion that the actual situation the child experiences is often not as important as the child's perception of the situation. Reciprocity is also a key construct, meaning the interactions in the different system affect the child, but the child also simultaneously affects his or her surroundings (Bronfenbrenner, 1977).

Applying ecological theory in physical activity research involves looking at multiple influences on behavior (Sallis et al., 2000; Welk, 1999). Causality is not assigned, but correlations between a person and his or her environment are explored (Dzewaltowski, 1997). Welk (1999) adopted the ecological approach to develop a conceptual model that specifically explains physical activity behavior in youth.

Youth Physical Activity Promotion Model

The Youth Physical Activity Promotion (YPAP) model uses ecological theory to examine personal, social, and environmental influences on behavior (Figure 2, p.32) (Welk, 1999, p.12). The model was designed to bridge the gap between research and practice, synthesizing research findings and then applying them to facilitate successful promotion of activity in youth (Welk, 1999). Various determinants are classified as factors that predispose, reinforce, or enable physical activity behavior in youth (Welk, 1999).

Predisposing factors.

In the center of the model, "predisposing" factors refer to "variables that collectively increase the likelihood that a person will be physically active on a regular basis" (Welk, 1999, p. 11). Through exploring the literature on physical activity determinants, Welk (1999) established that social learning theories and motivational theories are most commonly used in studying physical activity behavior. Both theoretical approaches have suggested two important predisposing factors. One was a self-evaluative component, such as perceived competence or self-efficacy. A person's perception of how much they can control their own behavior was seen as important across theoretical divides (Welk, 1999). The other was an assessment of perceived outcomes. A person's ability to think about the outcomes of participation and then use those to guide his or her behavior was also seen as an important predisposing factor (Welk, 1999).

In order to grasp both of these themes simultaneously, Fox (1991) conceptualized physical activity behavior into two questions: "Am I able?" and "Is it worth it?" (as cited in Welk, 1999, p. 12). "Am I able?" captures the self-evaluative component while "Is it worth it?" captures the importance of perceived outcomes (Welk, 1999). Thus, "youth who can

answer *yes* to both questions will likely possess an ‘active identity’ and be predisposed to an active lifestyle" (Welk, 1999, p. 13). Welk adopted Fox's (1991) conceptualization into the YPAP model since it incorporated similarities in the research without adhering to one specific theory (as cited in Welk, 1999).

Reinforcing factors.

“Reinforcing factors include variables that reinforce a child’s physical activity behavior” (Welk, 1999, p. 13). Parents, peers, and coaches are sources of influence in this domain, either by influencing the child's physical activity directly, or indirectly through affecting their predisposing factors (Welk, 1999). The direct path of influence could involve parents driving their children to parks or sporting activities, or directly involving the family in physically active pursuits (Welk, 1999).

The indirect path of influence has been empirically supported by various studies (Welk, 1999). Biddle and Goudas (1996) found that parental encouragement positively correlated with children’s perceived competence. Other studies have also suggested that children look to their parents for feedback on their physical capabilities (Kimiecik, Horn, and Shurin 1996; Welk, 1999). These findings confirm the indirect path through the “Am I able?” dimension of the predisposing factors in the YPAP Model (Welk, 1999). Indirect parental influence, through the “Is it worth it?” dimension, is also empirically supported (Welk, 1999). Parental beliefs about physical activity have been shown to affect the beliefs that children create and adhere to concerning their own physical activity (Kimiecik et al., 1996; Kimiecik & Horn, 1998).

Reinforcing factors play an important role but the strategies through which they influence youth are not as clear (Welk, 1999). For example, role modeling has been

frequently researched and is usually seen as the most effective tool for reinforcing physical activity (Welk, 1999). On the other hand, further research has shown that other socialization factors may play a more important role (Welk, 1999). Further discussion of specific parental influencing strategies will follow.

Enabling factors.

Enabling factors are environmental and biological determinants "that allow youth to be physically active" (Welk, 1999). Environmental determinants such as access to parks and equipment directly affect physical activity. If a child has limited access to an area or equipment for participation, their physical activity behavior is likely to be negatively affected (Welk, 1999). Biological determinants such as fitness can directly affect activity engagement. In addition, these factors can also indirectly affect activity through the "Am I able?" predisposing category (Welk, 1999). For example, if a child's physical fitness skills are low, he or she is more likely to have a low perceived competence and perhaps feel unable to participate (Welk, 1999). It has been found that children's perceptions of themselves are often more important than their actual skills or abilities (Welk, 1999). Enabling factors are necessary to warrant participation, but they cannot stand alone as the only determinants for physical activity behavior.

Demographics.

Demographics "directly influence how a particular individual will assimilate various influences" (Welk, 1999, p. 15). Age, gender, socioeconomic status, and cultural differences have been shown to affect development and physical activity participation (Welk, 1999). Significant gender differences are found in relation to predisposing, enabling, and reinforcing factors (Welk, 1999). Differences in determinants by gender can account for the differences

in the amount of participation and type of activities chosen by girls and boys (Welk, 1999). For example, findings from Trost et al. (1996) suggested that boys might be more physically active than girls due to greater confidence (predisposing factors) and greater access to community programs (enabling factors) (as cited in Welk, 1999). Biddle & Armstrong (1992) reported that boys might have an intrinsic drive for participating in physical activity (predisposing factors) whereas girls may need direct reinforcement and may depend more on extrinsic rewards (reinforcing factors) (as cited in Welk, 1999). Gender differences in physical activity may also be affected by different reinforcement and modeling strategies used by parents (Brustad, 1996). As previously noted, age can also have an effect on physical activity determinants. Children, adolescents, and adults have different cognitive abilities that influence their distinctive behavior choices (Brustad, 1998; Welk, 1999).

In order to combat the lack of physically active youth and the increased prevalence of childhood overweight, strategies to increase physically active lifestyles need to be promoted (Welk, 1999). The YPAP model is a promising conceptualization of the multiple determinants of physical activity behavior in youth. The model can be applied for further research, as well as for practical implementation in schools, communities, and families (Welk, 1999).

Parental Influence

Reinforcing factors play a key role in the overall YPAP model (Welk, 1999). Since parents contribute significantly to the variables that reinforce children's behavior, parental influence has been researched in many physical activity studies and has consistently been found to affect children's activity patterns (Welk, 1999). In this interpersonal domain, parents have a large impact on children's physical, emotional, and psychological

development (Welk et al., 2003). Research by Horn and colleagues revealed that younger children primarily look to their parents for sources of feedback in their physical activities. Older children and adolescents (beginning at about age 12), rely more on peers for performance evaluation and feedback, although parents are still important (as cited in Brustad, Babkes, & Smith, 2001). Encouraging families to model and support participation in regular physical activity is one of the key strategies for increasing physical activity levels in youth (HHS, 1996; HHS & U.S. Department of Education, 2000). It is recommended that physical activities should be fun, promote confidence, and be shared with friends and family (HHS, 1996).

Social Cognitive Theory

Bandura's (1986) social cognitive theory is an effective means to explain interpersonal influences on behavior, and can provide insight into the parent and child relationship. Human behavior is explained through the interactions of a person with his or her environment (Bandura, 1986). Cognitive, behavioral, and environmental factors interact with each other, creating a reciprocal effect (Bandura, 1986). "Within social cognitive theory, parents' attitudes and behaviors can affect children's physical activity through modeling, social influence, or social support processes" (Taylor, Baranowski, & Sallis, 1994, p. 328). Understanding parents' specific influencing strategies and socialization techniques is key in successfully promoting physical activity behavior for children (Welk, 1999).

Role modeling.

In physical activity research using the social cognitive perspective, role modeling has been the most frequently studied parental influencing strategy (Welk et al., 2003). Role modeling is a direct form of influence, where parents' efforts and interest in being physically

active are displayed (Sallis et al., 1992; Welk, 1999, Welk et al., 2003). In most studies, the relationship between role modeling and physical activity behavior has been found by correlating parents' and children's activity levels (Welk et al., 2003). The results have been mixed (Welk et al., 2003). Some studies have found that parental role modeling has a positive association with children's physical activity behavior (Anderssen & Wold, 1992; Davison, Cutting, & Birch, 2003; Fogelholm, Nuutinen, Pasanen, Myohanen, & Saatela, 1999; Freedson & Evenson, 1991; Moore et al., 1991; Sallis, McKenzie, & Nader, 1988; Stucky-Ropp & DiLorenzo, 1993; Trost et al., 2001). Other studies have found that role modeling is not a significant parental influencing strategy (Biddle & Goudas, 1996; Dempsey, Kimiecik, & Horn, 1993; McMurray et al., 1993; Sallis, et al, 1992).

Other influencing strategies.

Other parental influencing strategies have been researched in addition to role modeling. Some of these include parental encouragement (Anderssen & Wold, 1992; Biddle & Goudas, 1996; Brustad, 1993, 1996; Klesges, Eck, Hanson, Haddock, & Klesges, 1990), parental beliefs about physical activity (Dempsey et al., 1993; Kimiecik et al., 1996) and parental support and involvement in activity (Kimiecek & Horn, 1998; Sallis et al., 1992; Stucky-Ropp & DiLorenzo, 1993). These forms of parental influence may involve making efforts to encourage children to participate in physical activity, playing directly with children, or providing access or opportunities for physical activity pursuits (Welk et al., 2003). The various findings suggest that although role modeling may play an important role, other parental influencing strategies can positively affect children's physical activity behavior as well (Welk et al., 2003). Different research designs, various theoretical approaches, and lack of appropriate measures for children have added to the confusion in accurately defining

parental influences (Welk et al., 2003). The importance of various parental influences needs to be clarified in order to improve behavioral intervention and prevention programs to promote physical activity (Welk et al., 2003).

Cross-Cultural Research Void

It is also important to note that research related to specific parental influencing strategies has mainly concentrated on a participant population of Caucasian, middle to upper-middle class, suburban families (Brustad, 1996). With this homogeneous sample, generalizability is limited. The void of cross-cultural research studies, coupled with the increased risk for Black and Hispanic populations in developing childhood overweight, warrants the examination of the roles of race, ethnicity, and socioeconomic status on physical activity determinants (Brustad, 1996; Duda & Hayashi, 1998). While some studies have suggested that parents of various ethnic backgrounds influence their children's physical activity behavior, the specific socialization techniques have not been detailed (Gottlieb & Chen, 1985; Harrison, Harrison, & Moore, 2002; Kohl & Hobbs, 1998; Sallis et al., 1992; Taylor et al., 1999; Trost et al., 1999). "To improve our understanding of physical activity behavior in youth, we must acknowledge the potential interactions created by different demographic and interindividual influences on behavior" (Welk, 1999, p. 16). Specifically for African Americans, researchers need to commit to exploring how culture influences physical activity behavior (Felton, Boyd, Bartoces, & Tavakoli, 2002; Pittman, 2003; Young, Miller, Wilder, Yanek, & Becker, 1998).

Application of the YPAP Model

Welk et al. (2003) proposed the use of the Youth Physical Activity Promotion Model to better understand the multiple strategies parents use to influence children's activity

behavior. Specifically focusing on parents in the reinforcing factor domain (Figure 3, p.33), the researchers proposed that parents could have a direct effect on their children's physical activity, "through facilitating a child's efforts to be active" (Welk et al., 2003, p.20). To measure direct parental influence, the parental influencing variables were regressed on a general physical activity score (Welk et al., 2003).

In addition, the model proposes parents' ability to indirectly influence their children through affecting their "predisposing factors". Indirect parental influence has been empirically supported through previous studies (Welk, 1999). In this study, the predisposing factors were the child's attraction to physical activity and their perceived athletic competence (Welk et al., 2003). Attraction and perceived competence have both previously been shown to affect children's physical activity and were measured using previously validated instruments (Brustad, 1993, 1996; Harter, 1982, 1985). Other studies have also supported that parents influence their children both directly and indirectly (Kohl & Hobbs, 1998).

Welk et al. (2003) proposed a "battery of parental influence measures" to assess parents as influencing the variables that reinforce children's activity (p. 20). The measurement tool asked the children for their perceptions of their parents' influencing strategies concerning their physical activity. This is not seen as a limitation, since "research exists that indicates that children's perceptions of parental influence are more strongly related to children's psychological and affective outcomes than are parents' own self-reports of their beliefs and behaviors" (Babkes & Weiss, 1999; Gecas & Schwalbe, 1986; as cited in Brustad, Babkes, & Smith, 2001, p. 618).

Four scales were developed to assess parental influence by measuring parental role modeling, parental encouragement, parental facilitation, and parental involvement (Welk et

al., 2003, p.22). Each of the four strategies was examined independently for significance. A composite score called Parental Influence was found by taking the mean of the scores on the four scales.

Parental Role Modeling Scale

The parental role modeling scale was designed to capture children's perceptions of their parents' interest and involvement in physical activity (Brustad, 1996; Welk et al., 2003). Questions in this section ask children if their parents get a lot of exercise, if they are in good shape, if their parents like to walk for exercise, if their parents like to do physical activity, or if they think their parents walk or bike a lot (Welk et al., 2003). Modeling is one parental influencing strategy within the social cognitive theory (Bandura, 1986; Taylor et al., 1994; Welk et al., 2003).

Parental Encouragement Scale

Social influence is another parental influencing strategy within social cognitive theory (Bandura, 1986; Taylor et al., 1994; Welk et al., 2003). The parental encouragement scale was designed to measure social influence. Questions from this scale asked children if their parents tell them they are good at games and sports, if they encourage them or want them to play outside, if they tell them not to watch too much television, or if their parents remind them to do physical activity (Brustad, 1996; Welk et al., 2003).

Parental Involvement Scale

Welk et al. operationalized involvement as an "overt form of support (e.g. playing with the child)" (2003, p. 22). Questions from this scale asked children if their parents help them with sports, if they play games and sports with them, or if they practice games and sports skills with them a lot (Welk et al., 2003). The parental involvement scale was

combined with the parental facilitation scale to capture the social support strategy of the social cognitive theory (Bandura, 1986; Taylor et al., 1994; Welk et al., 2003).

Parental Facilitation Scale

Facilitation was operationalized to be a "gatekeeper" form of support where the parents provide access or opportunities for physical activity participation (Welk et al., 2003, p. 22). This scale asked children if their parents let them play on community or school sport teams, if they bought them a lot of sports equipment, or if they took them to parks or playgrounds (Welk et al., 2003).

The findings from the study suggested that parents influence their children's physical activity behavior both directly and indirectly (Welk et al., 2003). The study's sample included 994 children in grades 3-6 with a mean age of 9.95 years. The children were 68% Caucasian, 18% Black, 8% Asian, 4% Hispanic, 2% other, and were from diverse socioeconomic statuses (Welk et al., 2003, p. 21). The mean physical activity score for boys and girls combined was 3.23 out of 5 potential points.

Children's attraction to physical activity, perceived competence, and parental influence together accounted for 30% of the variance in children's physical activity behavior (Welk et al., 2003, p. 25). Individually, attraction accounted for 5.4%, parental influence for 3.4%, and perceived competence for 1.0% of the variance in physical activity behavior (Welk et al., 2003, p. 25). Significant gender effects were found with the measures explaining larger amounts of variance for boys than girls. Significant effects for grade level were not found.

Collectively, the parental influencing variables significantly predicted physical activity ($F = 121.3, p < .001$), attraction ($F = 171.9, p < .001$) and perceived competence ($F = 195.7, p < .001$). The four influencing strategies were also regressed on the three outcome

variables to test for independent effects. Role modeling, encouragement, involvement, and facilitation all predicted physical activity ($F = 7.8$, $F = 8.9$, $F = 16.3$, $F = 49.7$, $p < .01$ respectively). Only three of the strategies, role modeling, encouragement, and facilitation were significant in predicting attraction ($F = 4.8$, $p < .05$, $F = 73.8$, $p < .01$, $F = 72.1$, $p < .01$ respectively). Encouragement, involvement, and facilitation all significantly predicted perceived competence ($F = 33.3$, $p < .01$, $F = 6.8$, $p < .05$, $F = 139.4$, $p < .01$ respectively). Parental facilitation was found to contribute the largest amount of unique variance in predicting all three physical activity outcome measures. Parental encouragement was especially helpful in predicting attraction and perceived competence. Parental role modeling was significant in predicting physical activity and attraction but it accounted for less than 1% of the variance in these measures (Welk et al., 2003, p. 27). This finding suggested that parental role modeling may not be as important in contributing to the prediction of physical activity behavior in children as other parental influencing strategies.

Purpose of the Study

"A potentially fertile and currently unexplored area of pediatric sport research [physical activity research] lies in the examination of the meaning and experiences of sport [physical activity] participation for youth from a wide range of culturally and ethnically diverse backgrounds (Brustad et al., 2001, p. 629). As Welk noted (1999), "while specific models for various subpopulations are desirable, lack of additional data prevents making any specific delineations at this time" (p. 16). With Caucasian children as the majority of the sample from the Welk et al. 2003 study, generalizing these findings to other populations is problematic. The influences of race, ethnicity, and socioeconomic status are unclear. In the

vast number of physical activity studies on youth, culturally diverse populations are rarely considered.

Specifically, the ways parents influence children's physical activity in families of various ethnic backgrounds needs to be clarified. It is necessary to explore the cultural underpinnings of physical activity behavior to add to the body of knowledge in youth physical activity research. Investigating the parental influencing strategies in families of various ethnic backgrounds will also help to more accurately guide intervention and prevention programs for a population at risk for low activity levels and childhood overweight. Understanding cultural experiences will hopefully help to make physical activity promotion successful and begin to reverse the obesity epidemic. This study attempts to replicate the study done by Welk et al. (2003) on a sample of children of various ethnic backgrounds.

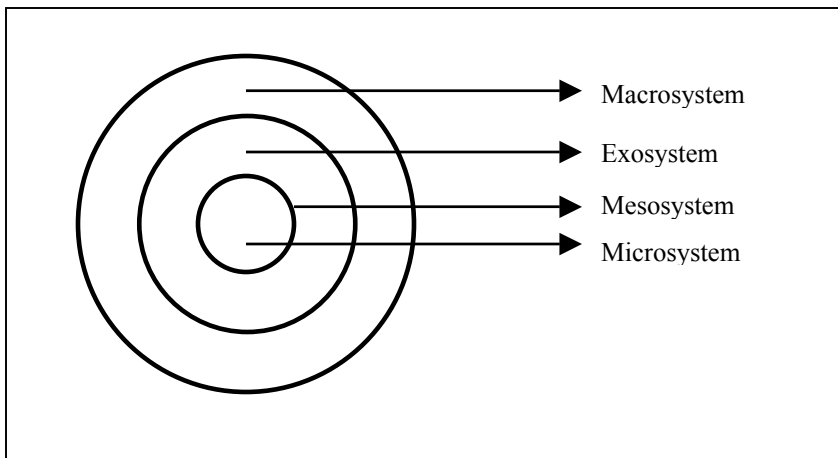


Figure 1. A conceptual model of the ecological theory.

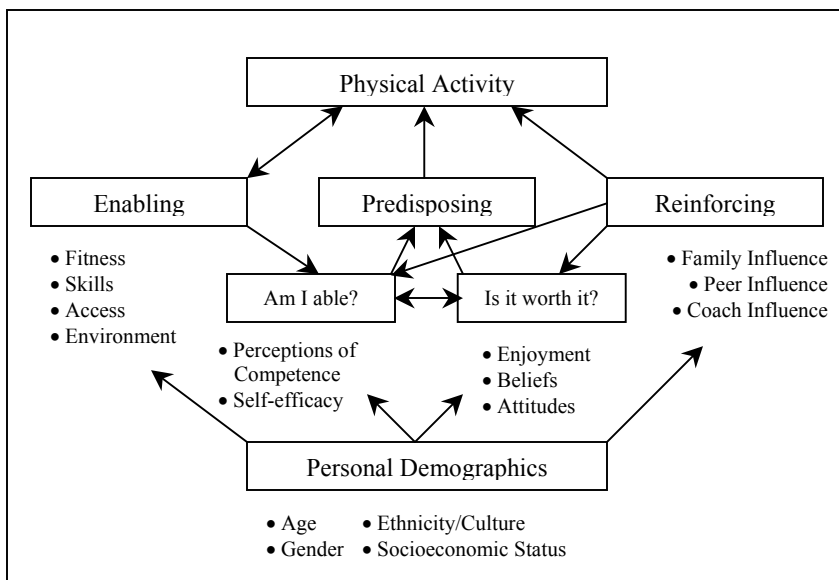


Figure 2. A conceptual diagram of the Youth Physical Activity Promotion Model.

Note: From “The Youth Physical Activity Promotion Model: A conceptual bridge between theory and practice”, by G.J. Welk, 1999, *Quest*, 51, p. 12. Adapted with permission.

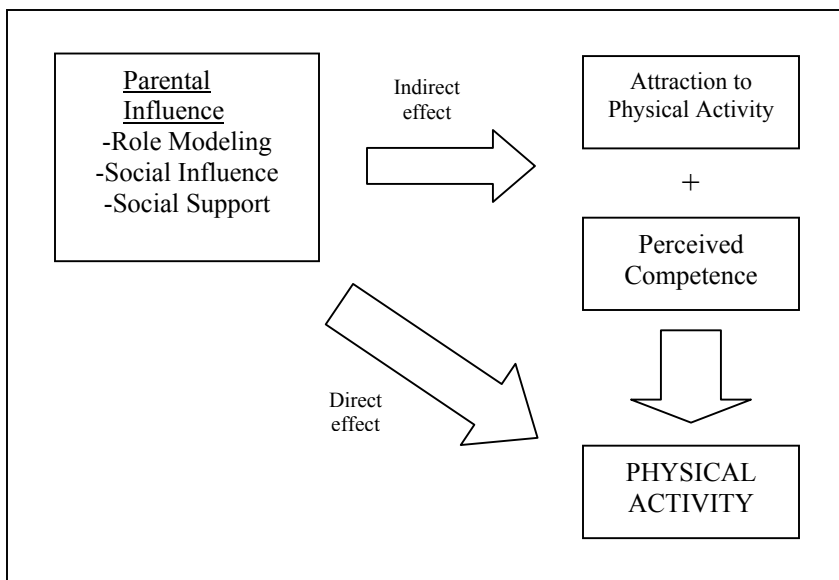


Figure 3. Conceptual model of parental influence on children's activity.
 Note: From "Parental influences on physical activity in children: An exploration of potential mechanisms", by G.J. Welk, K. Wood, & G. Morss, 2003, *Pediatric Exercise Science*, 15, p. 21. Adapted with permission.

Methods

In an effort to combat childhood overweight, research is needed to effectively guide programs focused on promoting physical activity. Knowing children's opinions of physical activity and how they perceive their parents' involvement will help guide promotion strategies to focus on key target areas. Research has shown that children's perceptions of their environment are often more important than the actual objective report of the situation (Bronfenbrenner, 1977). "Research exists that indicates that children's perceptions of parental influence are more strongly related to children's psychological and affective outcomes than are parents' own self-reports of their beliefs and behaviors" (Babkes & Weiss, 1999; Gecas & Schwalbe, 1986; as cited in Brustad, Babkes, & Smith, 2001, p. 618). For this study, children were recruited to take a self-report instrument to explore their opinions on physical activity. The instrument measured several constructs, including general physical activity levels, attraction to physical activity, perceived competence, and perceptions of parental influence on physically active pursuits. The methodology of this study was replicated from the study done by Welk et al. (2003).

Participants

One-hundred-and-ten children in the third, fourth, fifth, and sixth grades participated in the study. After two surveys were removed due to large amounts of missing data, the sample included 108 participants (54 girls and 54 boys). The children (mean age = 10.3 years, SD = 1.35 years) were primarily African American (88%) or Multiracial including African American (9%). American Indian or Alaska Native (1%) and Other (2%) children were also represented. A parental consent form was distributed to all parents of children in the third through sixth grades at two schools (Appendix A). Children who returned the signed

consent form and also signed their own assent form (Appendix B) were surveyed during the 2003-2004 school year. Approval to conduct this research was obtained from North Carolina State University's Institutional Review Board.

Purposive sampling was used to select the schools based on the need for a sample of children of various ethnic backgrounds. Principals were contacted at two local charter schools where the majority of students were African American and Administrators considered most of the students to be of lower socioeconomic status. At both schools, the majority of students also participated in the free or reduced lunch program, which is another indicator of lower socioeconomic status. Children attended either SPARC Academy, a Wake County charter school located in Raleigh, North Carolina (N = 26), or Healthy Start Academy, a Durham County charter school located in Durham, North Carolina (N = 84). Children at SPARC Academy participated in physical education classes at least once a week taught by a trained specialist. The administration at Healthy Start Academy had a budget cut for the 2003-2004 school year and had to temporarily remove their physical education program. Children at both schools received limited recess time.

Procedures

Approximately one hour was allotted for students to complete the physical activity questionnaire. Two researchers administered the survey to groups of 15-20 students at one time. The children were first introduced to the researchers and told that the purpose of the study was to find out their opinions about physical activity. Physical activity was briefly defined as any activity that gets your body moving, or that makes you sweat or breathe hard. A few brief examples of physical activities were given such as walking, playing games, sports, or cleaning the house. Participants were reminded the survey was not a test and there

were no right or wrong answers. They were told the researchers were only interested in their expert opinions on what children in the third through sixth grades thought about physical activity.

Specific instructions were read aloud to all students (Appendix C). For grades three and four, each survey question was read aloud by a researcher (R.J. Brustad, personal communication, November 1, 2003; Harter, 1985). For grades five and six, the students self-administered the survey after instructions were given. During survey administration, one researcher guided the students from the front of the classroom. Another researcher roamed to screen the surveys for correct completion and to answer any questions.

Instrumentation

The children's physical activity survey (Appendix D) was a compilation of four previously validated scales from different authors, designed to measure a general physical activity level, parental influences on physical activity, attraction to physical activity, and perceived athletic competence (Brustad, 1993, 1996; Harter, 1982, 1985; Kowalski et al., 1997; Welk et al., 2003). Across all of the scales, third grade, or eight-years old, was the minimum developmentally appropriate age to understand and complete the questions (Brustad, 1993, 1996; Harter, 1982, 1985; Kowalski et al., 1997, Welk et al., 2003). After about the sixth grade, children begin to move out of late childhood into adolescence. This study was focused on children in the developmental stages of middle to late childhood only. Welk et al. (2003) also surveyed third through sixth graders. The questionnaire used by Welk et al. (2003) was slightly modified for use in this study. Reasons for modification are explained in each of the following sections.

Part One

Part One of the survey was the Physical Activity Questionnaire for Children (PAQ-C) (Kowalski et al., 1997; K.C. Kowalski, personal communication, October 30, 2003). Part One was not altered from the survey used by Welk et al. (2003). This instrument is a 7-day recall questionnaire designed to assess general levels of physical activity in children ages 8-14. It can be administered in the classroom setting and takes about 10-20 minutes to complete. The PAQ-C was not designed to measure caloric expenditure and does not discern between moderate or vigorous physical activity. The instrument provides a summary physical activity score derived from nine items, each scored on a 5-point scale (K.C. Kowalski personal communication, October 30, 2003). Studies have shown good reliability ($r = .75$ for males and $r = .82$ for females) and validity of the instrument (Kowalski et al., 1997).

Item one.

For item one, a series of 22 specific physical activities are listed and the child is asked how often they have done each activity in the last seven days. Activities include skipping, running, walking for exercise, football, dance, skateboarding, and others. Possible responses were “no”, “1-2”, “3-4”, “5-6”, or “7 times or more” in the last seven days. Each activity was scored 1-5, 1 being “no” activity, and 5 being “7 times or more”. The mean of the scores from the list of activities was taken to form a composite score for item one.

Items two through eight.

Items two through seven asked the child his or her activity levels in the last seven days during physical education class, recess, lunch, right after school, in the evenings, and on the weekend. Each item had five choices, ranging from statements of low to high physical activity levels. Item eight provided the child with statements that described a person's

activity level in his or her free time over the last 7 days. Responses include statements that describe lifestyles of low physical activity to high physical activity. Items two through eight were again scored on a 1 to 5 scale, 1 being low physical activity and 5 being high. The reported values for these questions were used instead of a mean.

Item nine.

Item nine asked the child to mark how often he or she did physical activity for each day of the last week. Each day of the week was listed with the possible responses of “none”, “little bit”, “medium”, “often”, “very often”. Each of the days of the week was scored 1-5. A mean score was derived to form a composite score for item nine.

Item 10.

Item 10 asked the child to identify if there was some reason over the last week (like being sick) that prevented him or her from engaging in normal physical activity. This question helped to identify students that may have had an unusual week of physical activity but was not used in the calculation of the summary physical activity score.

Once a value was derived for each of the nine items, the mean of these items was found, which resulted in the final PAQ-C activity summary score (K.C. Kowalksi, personal communication, October 30, 2003).

Part Two

Part Two of the survey was designed to measure three constructs including parental influences on physical activity, attraction to physical activity, and perceived athletic competence (Welk et al., 2003). To measure each of these constructs, the survey combined three previously validated instruments (Brustad, 1993, 1996; Harter, 1982, 1985; Welk et al., 2003). All of these instruments used Harter’s (1982, 1985) structured alternative question

format. “The effectiveness of this question format lies in the implication that half of the kids in the world (or in one’s reference group) view themselves in one way, whereas the other half view themselves in the opposite manner” (Harter, 1985, p. 7). This format reduces socially desirable responses by presenting children with two opposing choices and then asking them to choose which one best represents how they describe themselves (Harter, 1985). Once they choose which statement best describes them, they are then asked if the statement is sort of true for them or really true for them. Examples of questions using this format are presented in each of the following sections. About one-third of the questions were worded negatively and two-thirds were worded positively.

Parental influence.

Parental influence on physical activity was measured by a series of questions developed by Welk et al. (2003), which were theoretically based on the Youth Physical Activity Promotion Model (Welk, 1999). Of the 39 questions in part two, 18 measured parental influence ($r = .81$).

Within the construct of parental influence, four specific parental influencing strategies were measured. These four strategies were synthesized from current research on how parents specifically influence their children’s physical activity behavior (Welk et al., 2003). Six questions measuring parental role modeling and six measuring parental encouragement were taken from a previous research study (Brustad, 1996). A sample item from the parental role modeling scale was “Some kids have parents who are in really good shape, but other kids have parents who aren’t in such good shape” (Welk et al., 2003). A sample parental encouragement question was “Some kids have parents who tell them that

they are good at games and sports, but other kids have parents who don't tell them they are good at games and sports" (Welk et al., 2003).

Welk et al. (2003) developed three questions to measure parental facilitation, and three to measure parental involvement. A sample question measuring parental facilitation was "Some kids have parents who buy them a lot of sports equipment, but other kids have parents who don't buy them much sports equipment" (Welk et al., 2003). A sample parental involvement question was "Some kids have parents who play games and sports with them, but other kids have parents who don't play games and sports with them" (Welk et al., 2003).

In using the structured alternative format, the questions were assigned values 1-4. One represented a response of low parental influence while 4 represented a response of high parental influence. Four parental influence questions were worded negatively, and 14 were worded positively. In this study, the questions on parental influence were not altered from their original form used by Welk et al. (2003).

Attraction to physical activity.

Children's attraction to physical activity was measured using the Children's Attraction to Physical Activity Scale (CAPA) (Brustad, 1993, 1996). The original CAPA scale contained 25 items that measured attraction to physical activity on five subscales. Welk et al. (2003) took the original 25-question scale and reduced it to 15 questions through pilot test studies. Brustad has now developed a short version of the scale that contains 15 items, the best three items from each of the five subscales in the original longer version (R.J. Brustad, personal communication, November 28, 2003). The CAPA short version is now recommended for use in computing a general measure of children's attraction. Welk et al.'s (2003) version of 15 items differed from the CAPA short version on four questions.

Since the CAPA short version is now recommended for use, these questions were used in Part Two of the survey. The reliability of the CAPA short scale has yet to be published but the scale author expects it to exceed .80, based on Cronbach's alpha (R.J. Brustad, personal communication, November 28, 2003). Using the short scale was the first modification to the survey used by Welk et al. (2003). The modification did not compromise the ability to compare results to the Welk et al. (2003) study because both sets of questions were measuring the same construct of children's attraction to physical activity.

A sample question used to measure attraction was "Some kids have more fun playing games and sports than anything else but other kids like doing other things" (R.J. Brustad, personal communication, November 28, 2003). Using the structured alternative format, the questions were scored 1-4, 1 representing a response of low attraction to physical activity and 4 representing a high attraction response. Seven attraction questions were worded negatively, and eight were worded positively.

Perceived athletic competence.

Perceived athletic competence was measured using Harter's Self-Perception Profile for Children (1985). Five domains of children's self worth were measured in the Profile instrument, including scholastic competence, social acceptance, athletic competence, physical appearance, and behavioral conduct (Harter, 1985). Only the six questions measuring athletic competence were used in Part Two of this survey ($r = .80-.86$) (Harter, 1985).

Welk et al. (2003) used questions from the Perceived Competence Scale for Children, an earlier version of this scale (Harter, 1982). Both scales measure perceived athletic competence, but the questions were updated in the 1985-revised version of the scale. Using

the more recent questions to measure athletic competence was the second and final modification to the survey used by Welk et al. (2003). Again, the ability to compare survey results to the Welk et al. study was not compromised since both scales measured the same construct.

A sample question that measured perceived athletic competence was “Some kids do very well at all kinds of sports but other kids don’t feel that they are very good when it comes to sports” (Harter, 1985; Welk et al., 2003). Using the structured alternative format, the questions were assigned values 1-4, 1 representing a low perceived competence response and 4 representing a high perceived competence response. Three perceived athletic competence questions were worded negatively, and three were worded positively.

Analysis

Data from 110 participant surveys was entered into SPSS. Two entries were removed due to large amounts of missing data. Twenty-seven of the remaining 108 entries contained only one or two missing values. Since missing data cannot be assumed to reflect randomness, it is dangerous to delete these entries and create potential bias (Little & Rubin, 1987, as cited in Garson, n.d.). Deleting these entries would also result in a smaller sample size, reducing statistical power (Little & Rubin, 1987, as cited in Garson, n.d.). Since each variable did not have more than 5% of the data missing, the “Replace Missing Cases” function in SPSS was performed (Garson, n.d.). Missing values were replaced with the series mean of the variable in question (Garson, n.d.).

Composite scores were computed for total physical activity (TPAQ), attraction to physical activity (Attract), perceived athletic competence (PerComp), and total parental influence (TparInf). Composite scores for the specific parental influencing strategies

including parental role modeling (Role), encouragement (Enc), involvement (Inv), and facilitation (Fac) were also computed. After performing an exploratory factor analysis, Welk et al. (2003) found that the four influencing strategies loaded on two factors. Parental encouragement, involvement, and facilitation loaded on one factor, which Welk et al. (2003) called Parental Support (ParSupp). Role modeling loaded on another factor named Parental Role (ParRole) (Welk et al., 2003). Composite scores for both of these variables were also computed.

Descriptive statistics (mean, standard deviation, and frequencies) were calculated for each measure. A two-way (gender x grade) analysis of variance (ANOVA) was performed for total physical activity, attraction, and perceived competence to test for any gender, grade, or interaction of gender by grade effects.

Multiple regression techniques were used to address the research questions. In the first analysis, attraction, perceived competence, and parental influence were regressed on total physical activity to identify the predictive ability of all three independent measures on children's physical activity. Beta weights were examined to assess the unique contribution of each variable on total physical activity. Beta weights measure the average amount the dependent variable increases when the independent variable increases one standard deviation and the other dependent variables are held constant (Garson, n.d.; Welk, 2003).

In the second set of analyses, each parental influencing strategy (role modeling, facilitation, encouragement, and involvement) was independently regressed on the three outcome variables to test for significance in predicting children's physical activity either directly (TPAQ) or indirectly (Attract, PerComp). The beta weights from each regression were also reported to explore the unique contribution of each strategy in predicting physical

activity. The composite parental influence variables from the factor analysis (ParSupp and ParRole) were also regressed on each of the outcome variables to further explore significant relationships.

Results

The Youth Physical Activity Promotion Model (YPAP) synthesizes research findings and helps to explain physical activity behavior in youth (Figure 2, p.32) (Welk, 1999). Parents as reinforcing factors are a key part of the YPAP model (Welk, 1999; Welk et al., 2003). Research has shown that parents influence their children's physical activity directly and indirectly through a variety of strategies (Figure 3, p.33) (Welk, 1999; Welk et al., 2003). Demographics are also a part of the YPAP model, affecting children's physical activity participation. Children of color are at a slightly higher risk for overweight and physical inactivity, and there is evidence suggesting culture and ethnic identity are related to participation in physical activity (HHS, 2001; Taylor et al., 1999; Taylor & Sallis, 1997, as cited in Sallis et al., 1998). The majority of youth physical activity research has focused on the experiences of White, middle to upper class, suburban children (Brustad, 1996; Duda & Hayashi, 1998). Welk (1999) noted that models for subpopulations could be useful, but the lack of data prevents these from being developed. This purpose of this study was to explore parental influences on the physical activity behavior of children of various ethnic backgrounds. This chapter is divided into subsections reporting the descriptive results and the results addressing the three research questions on parental influence.

Descriptive Results

The descriptive statistics for the sample population of 108 children in grades 3-6 are shown in Table 1 (p.52). Means and standard deviations for the dependent and independent variables are reported in Table 2 (p.53). The mean physical activity score for this sample was 2.79 out of 5; lower than 3.23 reported by Welk et al. (2003). There were equal numbers of males and females and the mean age of participants was 10.33 years (SD = 1.35). There were

no gender by grade interactions found on any of the outcome variables and the gender main effect was not significant ($p < .05$).

Ethnicity is difficult to measure because it implies cultural significance and is not synonymous with race (Senior & Bhopal, 1994). The United States census uses a self-classification format, which is seen as acceptable since ethnicity is a matter of self-perception (Senior & Bhopal, 1994; Wallman, Evinger, & Schechter, 2000). In 1997, the Office of Management and Budget (OMB) revised the Statistical Policy Directive No. 15, Race and Ethnic Standards for Federal Statistics and Administrative Reporting (Brener, Kann, & McManus, 2003; Wallman et al., 2000). Before the revision, respondents were asked to identify with one group from a list of five racial/ethnic categories (Brener et al., 2003; Wallman et al., 2003). The revision states respondents should now be able to choose one or more groups from a list of racial/ethnic categories (Brener et al., 2003, Wallman et al., 2003). A study examined the effect of the revision on the CDC's Youth Risk Behavior Surveillance System data collection (Brener et al., 2003). The new question provided a lower nonresponse rate, improved the percentages of those reporting small racial/ethnic groups, and did not affect the percentage of those reporting Black or White (Brener et al., 2003). For this survey, children were asked the question, "How do you describe yourself? ", and were given the option to choose one or more blanks from the following list: "American Indian or Alaska Native, Asian, Black or African American, Native Hawaiian or Pacific Islander, Hispanic or Latino, White, or Other". The "Other" category was followed by a blank for open-ended answers.

Eighty-eight percent of the participants ($n = 95$) described themselves as Black or African American. Approximately 10% ($n = 11$) identified with one or more groups in

addition to Black or African American, and were reported as “Multiracial” (Table 1, p.52). Even though the majority self-identified as Black or African American, the full sample was considered to be children of various ethnic backgrounds since there was representation from other ethnic groups.

Parental Influence

Multiple regression analysis was used to test parental influences on children’s physical activity and to address the research questions. Residual histograms for all analyses appeared to be normally distributed and the residual scatterplots did not resemble any pattern that would imply non-normal data. Collectively, attraction (Attract), perceived competence (PerComp), and parental influence (TParInf) accounted for 10.1% of the variance in children’s physical activity ($F = 3.880, p < .01$). In this model, parental influence had a significant unique contribution to predicting physical activity (beta weight = 0.274, $t = 2.598, p < .01$).

Direct Influence

Studies have shown that parents directly influence their children’s physical activity behavior (Figure 3, p.33) (Welk et al., 2003). Research question one was designed to explore direct parental influence for this sample. Since parental influence did have a significant unique contribution on physical activity (beta weight = 0.274, $t = 2.598, p < .01$), it appeared that parents directly influence their children’s physical activity in this study. The four specific parental influencing strategies, role modeling (Role), encouragement (Enc), involvement (Inv), and facilitation (Fac), were regressed on TPAQ to further explore direct parental influence. Collectively, the variables accounted for 11.3% of the variance in physical activity ($F = 3.275, p < .01$). Welk et al. (2003) also found the direct influence path

significant, with the parental influence variables collectively accounting for 19.7% of the variance in physical activity. Direct influence could involve taking a child to playgrounds or games, or directly participating with the child in physically active pursuits (Welk, 1999).

In the literature, parental influence is consistently found to correlate with youth physical activity (Welk, 1999). Ecological theory and the Youth Physical Activity Promotion Model theoretically support this finding as well (Bronfenbrenner, 1977; Welk, 1999). Research has shown that younger children look to their parents as sources of feedback in their physical activities (Brustad et al., 2001). Children in this sample perceived their parents as direct influencing factors in relation to physical activity participation.

Indirect Influence

Previous studies have also suggested that parents indirectly influence their children's physical activity (Figure 3, p.33) (Brustad, 1993, 1996; Welk et al., 2003). The second research question asked if parents indirectly influence children's physical activity through affecting their attraction to physical activity and perceived competence. Children are more likely to participate in physical activity if they are attracted to it and have high perceived athletic competence (Brustad, 1993, 1996; Harter, 1982, 1985; Welk, 1999; Welk et al., 2003). Role modeling, encouragement, involvement, and facilitation were independently regressed on attraction and perceived competence to explore indirect parental influence.

Collectively, the four strategies accounted for 25.8% of the variance in attraction ($F = 8.939, p < .00$) and 12.6% of the variance in perceived competence ($F = 3.727, p < .007$). These significant findings suggested that parents indirectly influence their children's physical activity behavior through affecting their attraction and perceived competence. Welk et al.

(2003) also found indirect parental influence significant, with the strategies accounting for 25.8% of the variance in attraction and 28.3% of the variance in perceived competence.

Direct Versus Indirect Parental Influence

More variance was explained through the indirect path of parental influence than the direct path. Perhaps for this sample, parents more effectively shape children's activity patterns indirectly. Children may be looking to their parents for feedback to answer the "Is it worth it?" and "Am I able?" questions concerning physical activity that are outlined in the YPAP model (Figure 2, p.32) (Welk, 1999). The parental influence strategies accounted for the largest amount of variance in attraction, perhaps suggesting that this form of influence is particularly important for this population. The current literature supports both direct and indirect methods of parental influence (Welk, 1999).

In examining indirect parental influence, a theoretically based assumption is made that attraction and perceived competence predict physical activity (Figure 3, p.33). This assumption has been extensively studied and consistently reported; therefore the same pattern was expected to appear in this study (Brustad, 1993, 1996; Harter, 1982, 1985; Welk, 1999; Welk et al., 2003). When attraction and perceived competence were regressed on physical activity, the findings suggested that the two variables did not significantly predict the outcome. This was contrary to previous research but could be explained, in part, by the potential inability of the physical activity measure to capture the true physical activity behavior for this sample. This speculation will be further explored in the discussion (Chapter Five).

Significance of Each Parental Influencing Strategy

Parents play an important role, but the strategies through which they influence children are not as clear (Welk, 1999). Role modeling has been frequently researched and is usually seen as the most effective tool for reinforcing physical activity (Welk, 1999). Other research has shown that socialization factors aside from role modeling may play a more important role (Welk, 1999). The final research question was designed to explore these previous findings. Role modeling, encouragement, involvement, and facilitation were examined through multiple regression analysis to see which strategies were significant in predicting the outcome variables (physical activity, attraction, and perceived competence). The beta weights and significance levels for the four strategies on each of the outcomes are found in Table 3 (p.54). It is important to note that involvement was the only strategy found to contribute uniquely in predicting physical activity (beta weight = .221, $t = 2.005$, $p < .048$) and encouragement was the only strategy found to contribute uniquely in predicting attraction (beta weight = .392, $t = 3.833$, $p < .00$). None of the strategies were found to contribute uniquely in predicting perceived competence.

In comparison, Welk et al. (2003) reported all four of the strategies had significant beta weights in reference to physical activity. It was also reported that role modeling, encouragement, and facilitation were significant for attraction, and that encouragement, involvement, and facilitation were significant for perceived competence (Welk, 2003). The differences could be due, in some part, to the difference in sample size, since there were 994 children surveyed in the Welk et al. study (2003). Even with a sample size of 108, this data appeared normally distributed and the size was large enough that statistical power was

assumed for interpretations. For this study, the parental influencing strategies were perhaps more appropriately viewed as jointly contributing to predicting the three outcome variables.

Since parental influencing variables are usually conceptualized as either role modeling or other support, the factor analysis by Welk et al. (2003) was used as a foundation to further explore this final research question (Sallis et al., 1992; Taylor, Baranowski, & Sallis, 1994; Welk, 1999). Scores were created using the two-factor model as a guide, with one score representing role modeling (Factor 1, PARROLE), and the other representing parental support through forming a composite score of encouragement, involvement, and facilitation (Factor 2, PARSUPP).

PARROLE and PARSUPP collectively accounted for 8.3% of the variance in TPAQ ($F = 4.783, p < .01$), 22.9% of the variance in attraction ($F = 15.598, p < .00$), and 9.8% of the variance in perceived competence ($F = 6.787, p < .002$). Support was found to uniquely contribute significant amounts in predicting all three outcome variables while role modeling was not (Table 3, p.54). Welk et al. (2003) also found that PARSUPP predicted a significant amount of variance in their analyses. Previous studies have also suggested that support mechanisms other than role modeling are successful parental influencing strategies (Anderssen & Wold, 1992; Biddle, & Goudas, 1996; Brustad, 1993, 1996; Dempsey et al., 1993; Kimiecik & Horn, 1998; Kimiecik et al., 1996; Klesges et al., 1990; Sallis et al., 1992; Stucky-Ropp & DiLorenzo, 1993).

In summary, the individual contributions of each strategy were difficult to parcel out, but the overall significance of the parental support variable suggests that parental influencing strategies such as encouragement, involvement, and facilitation were more important for this sample than role modeling.

Table 1

Descriptive Statistics (Frequencies and Percents) for the Sample Population (N=108)

| Characteristic | Category | <i>f</i> | % |
|----------------|-----------------------------------|----------|------|
| Gender | Male | 54 | 50 |
| | Female | 54 | 50 |
| Age | 8 | 12 | 11.1 |
| | 9 | 19 | 17.6 |
| | 10 | 24 | 22.2 |
| | 11 | 31 | 28.7 |
| | 12 | 18 | 16.7 |
| | 13 | 4 | 3.7 |
| Grade | 3 | 21 | 19.4 |
| | 4 | 38 | 35.2 |
| | 5 | 19 | 17.6 |
| | 6 | 30 | 27.8 |
| Ethnicity | Black/ African American | 95 | 88 |
| | Multiracial | 11 | 10.2 |
| | Jamaican | 1 | 0.9 |
| | American Indian/ Alaska Native | 1 | 0.9 |

Table 2

*Means and Standard Deviations for Physical Activity and Parental Influence Variables
(sample N=108)*

| Variable | Mean | SD |
|----------|------|------|
| TPAQ | 2.79 | 0.57 |
| Attract | 3.01 | 0.45 |
| PerComp | 2.92 | 0.62 |
| TParInf | 2.85 | 0.47 |
| PARROLE | 2.82 | 0.58 |
| PARSUPP | 2.86 | 0.51 |
| Role | 2.82 | 0.58 |
| Enc | 2.98 | 0.54 |
| Inv | 2.83 | 0.75 |
| Fac | 2.64 | 0.76 |

Table 3

Standardized Regression Coefficients (Beta Weights) of Parental Influence Measures from Two Multiple Regression Models

| Outcome | Predictors | Beta weight | t value | p value |
|---------|------------|-------------|---------|---------|
| TPAQ | Role | .047 | .427 | .671 |
| | Enc | -.032 | -.286 | .775 |
| | Inv | .221 | 2.005 | .048* |
| | Fac | .161 | 1.430 | .156 |
| | PARROLE | .058 | .533 | .595 |
| | PARSUPP | .254 | 2.317 | .022* |
| Attract | Role | .077 | .769 | .444 |
| | Enc | .392 | 3.833 | .000* |
| | Inv | .029 | .288 | .774 |
| | Fac | .108 | 1.045 | .298 |
| | PARROLE | .065 | .643 | .522 |
| | PARSUPP | .442 | 4.390 | .000* |
| PerComp | Role | .033 | .302 | .763 |
| | Enc | .065 | .587 | .558 |
| | Inv | .207 | 1.893 | .061 |
| | Fac | .145 | 1.300 | .196 |
| | PARROLE | .042 | .389 | .698 |
| | PARSUPP | .314 | 2.918 | .004* |

Note. In model one, Role, Enc, Inv, and Fac were regressed on each of the three dependent variables. Since there was little evidence of unique contributions for model one, a second model was fit where PARROLE and PARSUPP were regressed on each of the three outcome variables.

*Significant findings.

Discussion

Promoting physical activity is a complex but urgent task in overcoming the epidemic of childhood overweight. Multiple factors encourage or discourage children to be active, therefore making research in this area necessary on a continual basis. Parents can use influencing methods that will not only help their children to make healthier choices, but also establish healthy patterns for the entire family. The majority of youth physical activity research to date has not thoroughly examined the experiences of children of various ethnic backgrounds. Studies have suggested that parents of various ethnicities influence children's activity but the specific influencing strategies have not been explored in depth. Since it is suggested that Black and Hispanic children are at a slightly higher risk for overweight and inactivity than White children, parental influencing strategies need to be researched in order to successfully deliver physical activity promotion programs for all races and ethnic backgrounds (HSS, 2001).

The goal of this research was to explore parental influences on the physical activity behavior of a sample of African American children. Research questions were designed to establish if parents directly and indirectly influenced children's activity levels, and if so, what specific influencing strategies were significant in predicting physical activity. Multiple regression analysis was utilized to provide insight into these questions. The results of this study were applicable to this specific sample and can be used as a foundation for future research. This research should encourage others to continue to investigate, in detail, the physical activity experiences of children and families of various ethnic backgrounds.

Cultural Bias in Measurement

In exploring direct parental influence, the four parental influencing variables (role modeling, encouragement, involvement, and facilitation) were regressed on the general measure of physical activity (TPAQ). To explore indirect parental influence, the variables were regressed on attraction and perceived competence. The predictive capability of the parental influencing variables for general physical activity and perceived competence were lower in comparison to the findings reported by Welk et al. (2003). For this study, the parental influence variables accounted for 11.3% of the variance in physical activity compared to 19.7% in Welk et al. (2003). Also in this study, the parental influence variables accounted for 12.6% of the variance in perceived competence compared to 28.3% of the variance in Welk et al. (2003). In comparing the predictive capability for attraction, the findings were virtually identical. In both studies, the parental influence variables accounted for 25.8% of the variance in attraction (Welk et al., 2003). These findings could be due to the peculiarities of this specific sample and may be capitalizing on chance. Although there is some limitation in comparing across studies due to differences in sample size, it is worth exploring the potential explanations behind these contradictions.

The physical activity measure and the perceived athletic competence scale potentially introduced cultural bias. This problem also may have explained the mean physical activity score for this sample being 2.79; lower than 3.23 from Welk et al. (2003). Speculations can be made that the Children's Attraction to Physical Activity Scale (CAPA) (Brustad, 1993, 1996) was less culturally bias, or perhaps more culturally neutral, than the Physical Activity Questionnaire for Children (Kowalski et al., 1997) and the athletic competence scale from the Self Perception Profile for Children (Harter, 1985).

Brustad (1996) utilized the CAPA scale in a study with a sample population of primarily Latino and Caucasian children of low socioeconomic status. He reported that ethnicity was not a significant factor in the differences among children in patterns of attraction to physical activity (Brustad, 1996). This finding provided preliminary evidence that attraction to physical activity can be measured in children of various ethnic backgrounds using the CAPA scale without introducing cultural bias, with the assumption that one group of Latino children would provide sufficient insight to make this generalization. In contrast, Harter (1985) noted that the findings used to validate the Self Perception Profile for Children were drawn from samples of primarily (90%) White subjects from lower middle to upper middle class (Harter, 1985). Cultural bias may have been introduced when transferring a scale that was created based on the experiences of a primarily White sample to this study involving a primarily Black or African American sample. The study created to validate the Physical Activity Questionnaire for Children did not report racial or ethnic statistics, but it was validated on a sample from a Canadian public school system (Kowalksi et al., 1997). The vast difference in geographic locations from Canada to urban North Carolina cities may have also introduced cultural bias.

Although specific tests were not run to validate these assumptions, administering the survey provided evidence that would also support the cultural bias of the PAQ-C scale. This sample of children had difficulty with the first question on the general physical activity measure. Item one listed a series of activities and asked the child to mark how many times they participated in that activity in the last seven days. Children in this sample, regardless of age, did not fully understand the meaning of activities such as “rowing/canoeing, aerobics, badminton, and cross-country skiing” and had difficulty in their response to these questions.

The possibility existed that these activities were outside their cultural frame of reference. At the end of item one, there was an opportunity for children to fill in two blanks with “other” activities that they participated in over the last seven days but were not in the defined list. These questions were not counted in the overall score but were examined for exploratory purposes. Many children wrote answers for this question, marking their “other” activity as something they participated in often in the last seven days. Answers included weight lifting, wrestling, stepping (dance was an option but was not seen as analogous), tennis, cheerleading, jump roping, gymnastics, boxing, playing kickball, and karate. Two common responses were singing and rapping. These two responses were especially interesting. Singing and rapping would not typically fit the definition of physical activity as something that makes you sweat or breathe hard. Perhaps for this population, singing and rapping are viewed as more active pursuits. Further investigation is needed to fully understand these responses.

Studies have shown that culture does impact activity preference (Airhihenbuwa et al., 1995; Gottlieb & Chen, 1985; Kohl & Hobbs, 1998; Taylor et al., 1999). Physical activity is difficult to measure in all children, but activity preference of children of various ethnic backgrounds needs to be further explored. Speculations can be made that the PAQ-C was not culturally sensitive and failed to capture the entire scope of the general levels of physical activity for children in this sample. Cultural influence has not been previously reported to affect perceived athletic competence. The cultural versatility of the Self Perception Profile for Children also needs to be further explored.

If culturally appropriate measures had been used for this population, the physical activity mean score may have actually increased, since most children filled out the “other”

blank for activities in which they participated. There is also the chance that the mean physical activity scores would have remained low, since these children had limited recess and physical education classes. Eliminating cultural bias in the scale would allow more confident interpretations of the findings. Culturally sensitive measures would provide accurate and thorough physical activity and perceived competence scores and would allow more accurate interpretations of direct and indirect parental influence.

The possibility also exists that for this multi-ethnic sample, the children did not perceive their parents as influencing their physical activity and perceived competence to the same degree as the sample of children in the Welk et al. (2003) study. Perhaps the children were looking to other adults in their lives such as extended family members, teachers, coaches, caretakers, or after school instructors to fulfill this influencing role. Research has also shown that when children approach adolescence, peers become a stronger influencing factor than parents (Welk, 1999). With 11-13 year olds comprising half of the sample, these preadolescents may have viewed their peers as greater influences instead of their parents. Perhaps for this multi-ethnic sample in this location, peers were providing a greater degree of influence on physical activity behavior and perceived competence.

Environmental and Cultural Impacts on Parental Influence

Although parents directly and indirectly influenced their children in this study, more variance was explained through the indirect path than the direct path. Ethnicity and socioeconomic status may have influenced this finding. This study did not directly assess the impacts of socioeconomic status, race, and ethnicity on parental influence, but it did attempt to investigate if previous findings could be extended to a sample of primarily African American children of low socioeconomic status. The access and opportunities available to

this sample may have affected the choices parents made in how they influenced children's physical activity behavior.

Direct parental influence can involve taking children to parks or playgrounds or directly participating with the child in physically active pursuits (Welk, 1999). Involvement in physical activity depends on access and opportunity, and parents can support children by directly providing the environment that encourages physical activity (Taylor et al., 1994; Welk, 1999). Parents of children of lower socioeconomic status may work longer hours and therefore have less free time to engage in physical activity with their children (Brustad, 1996). Although public park and recreation agencies attempt to offer programs and activities at reasonable costs, parents could also be limited in registering children for organized sport and recreation due to the economic burden of fees (Brustad, 1996; Taylor et al., 1994). Parents may also limit children's participation in unorganized play if community parks and playgrounds are unavailable or perceived as unsafe (Brustad, 1996; Taylor et al., 1994). Access to gyms, playgrounds, sports equipment, and parks may increase the chance for children to establish healthy patterns for physical activity (Klesges et al., 1990). Principals at both charter schools were eager to participate in this research effort because they were concerned about the lack of access and opportunity for physically active pursuits for their students.

Cultural perceptions of appropriate body image may also affect the degree to which parents directly influence their children by providing an environment that promotes physical activity. In low socioeconomic groups, thinness is often a sign of poverty (Kumanyika, 1993). In traditional African cultures, overweight is more accepted because it is seen as a sign of wealth and prosperity (Villarosa, 1994). If additional weight is seen as normative in

the family environments of children of various ethnic backgrounds, parents may be less likely to directly influence their children to participate in physical activity. Promoting healthy, lifelong physical activity habits may not be seen as a priority in socialization techniques. Parents may not feel the need to take children to parks or playgrounds or participate with them in activities. Perhaps for this sample, parents are more likely to influence children indirectly, especially by affecting their attraction to physical activity.

Suggestions for Further Research

This study began in an effort to respond to the void of cross-cultural research by exploring the physical activity experiences of a sample of children of various ethnic backgrounds. Since this research occurred on a relatively small sample in one location, this was a beginning for future study. More comprehensive studies with larger sample sizes need to occur. Parental influences need to be further clarified, along with general physical activity preferences and attitudes. Other children from various ethnic backgrounds in addition to African Americans need to be researched. For example, the Hispanic and Latino population is rapidly growing in North Carolina and the United States, and studies have shown that these children are also at a higher risk for overweight than White children (HHS, 2001, 2002). Research is needed to clarify appropriate physical activity promotion strategies for this population. Studies with children from lower socioeconomic status have also been underrepresented and need to be developed.

Culturally Sensitive Scale Development

Findings from this study suggested that both the physical activity measure and the perceived athletic competence scale did not capture the entire scope of children's experiences of various ethnic backgrounds. Before future research on larger or cross-cultural samples can

continue, culturally sensitive scales need to be developed. The first step in appropriate scale development is to clearly conceptualize culture and ethnicity (Duda & Hayashi, 1998). The multiple dimensions of ethnicity need to be measured to enable comparisons across cultures (Duda & Hayashi, 1998). Race and ethnicity should not be seen as synonymous (Senior & Bhopal, 1994). Socioeconomic status also contributes to the concept of culture and should be included simultaneously in the measurement of ethnicity (Duda & Hayashi, 1998; Senior & Bhopal, 1994). The degree of ethnic identification and the extent to which a person adheres to mainstream culture should also be investigated, perhaps by including scales such as the Mutigroup Ethnic Identity Measure (MEIM) designed by Phinney (1992) (as cited in Duda & Hayashi, 1998). All cross-cultural reports should explicitly detail the operationalization of ethnicity and the methods for ethnic classification (Senior & Bhopal, 1994). Research methods for identification of ethnicity in children should also be developed.

Once ethnic classification is appropriately and thoroughly established, investigation needs to occur to explore the meaning of physical activity constructs across groups (Duda & Hayashi, 1998). Cultural norms and values may cause children to view constructs differently (Duda & Hayashi, 1998). Developing a measurement tool in one culture and applying it to another culture can introduce cultural bias (Duda & Hayashi, 1998). If African American children have a different understanding of a construct being measured than another population, it is limiting to compare the results across studies. The measurement tool may be identical, but the children may interpret the constructs differently within various cultural influences (Duda & Hayashi, 1998). Physical activity constructs need to be investigated and clearly defined, not assumed, within various cultures. Both quantitative and qualitative analysis would be useful in capturing the full picture of cultural influences (Duda & Hayashi,

1998). Once constructs and perceptions of physical activity are understood, culturally sensitive scales with precise psychometric properties can be developed that will effectively enable cross-cultural comparisons of findings (Duda & Hayashi, 1998).

Specific Parental Influencing Strategies

Further investigation also needs to occur into the individual contributions of each of the parental influencing strategies. These could not be individually parceled out in this study but it is difficult to determine exactly why. Larger scale studies could continue the efforts here as well, to better understand parents' socialization strategies across cultures. It would also be helpful to investigate which strategies are most useful for directly influencing children's physical activity, and which are more useful for indirectly influencing children through affecting their predisposing factors like attraction and perceived competence. Cultural beliefs, values, and norms may guide parents in choosing how they influence children.

The YPAP Model in Cross-Cultural Research

The results of this study support further use of the Youth Physical Activity Promotion Model (Welk, 1999). Findings supported that parents directly and indirectly influence children's activity levels (Figure 2, p.32). Welk (1999) noted that future studies might lead to the development of additional models for various groups aside from Caucasian, middle to upper class, suburban youth that is readily studied. In examining the experiences of a primarily African American sample, specific recommendations cannot be made for additional model development for this group. The current model appeared useful for this sample. Further research is needed to increase the generalizability of this suggestion. The possibility

still exists that culture may influence parental influencing strategies and children's physical activity behavior and models to delineate these experiences may need to be developed.

Implications

The findings of this study contributed to the knowledge base regarding parental influence on the physical activity behavior in children by studying an underrepresented population. Influencing strategies that were previously found to occur primarily in Caucasian children of middle to upper socioeconomic levels were replicated in this study among children of various ethnic backgrounds and of lower socioeconomic status (Welk, 1999; Welk et al., 2003). Discovering correlates of physical activity behavior of children across all cultures is necessary in establishing healthy, lifelong activity patterns and reducing the prevalence of childhood overweight. With knowledge of the results of this study, professionals committed to promoting physical activity in children can more effectively educate and involve parents, create culturally sensitive environments for participation, and recognize the multiple determinants in children's physical activity participation in order to deliver comprehensive programs.

Involve and Educate Parents

Research is most beneficial when it is translated into practice. The findings from this study can be used in the practical implementation of programs to promote physical activity, particularly for programs targeting families of various ethnic backgrounds. These programs may occur in the school setting, after school programs, in parks and recreation facilities, or in any non-profit, public, or private agency where children congregate to play. This study found that parents significantly influenced children's physical activity behavior. Physical activity programs targeted at children should actively involve parents. Even if a program is being

offered specifically to a child without a parent present, caregivers should be actively engaged to take part in the learning. Parents can play a significant role in influencing their children and the message of establishing healthy activity patterns must be transferred and upheld in the home environment.

In these physical activity promotion programs, parents need to be educated on both direct and indirect forms of influence. Welk (1999) noted that most programs promote parents becoming directly involved in physical activity with their children. They may be encouraged to go outside and play with their children, take them to parks or playgrounds, or purchase equipment (Welk, 1999). Although this direct path of influence is significant, parents also need to be educated to become aware of the indirect paths of influence they can create. They can effectively and practically influence their children by communicating the worth of physical activity participation and telling children they are capable of participating.

Parents also need to be educated on how to influence their children to be active through different influencing strategies such as role modeling, encouragement, involvement, and facilitation. These influencing strategies are simple to communicate and easy to put into practice. If parents are physically active role models, children are influenced to participate themselves. If parents verbally encourage children to play outside, children are more likely to engage. If parents actually get out and play with their children, children are more likely to develop physically active habits. If parents provide transportation to games or playgrounds, purchase sports equipment, or enroll children in a sports league, children are more likely to participate in physical activity. All of these strategies need to be emphasized to enable parents to be more successful in promoting physically active behavior for their children.

Cultural Sensitivity

To apply the evidence that culture impacts physical activity participation, programs need to create culturally sensitive environments. Implementation strategies need to be participant focused. Focus groups could be facilitated to determine perceptions and interests concerning physical activities for families of various ethnic backgrounds. Participant opinions need to guide implementation strategies to capture the audience and allow them to become fully engaged. Efforts should be made to understand that what works for one population may or may not work in the same exact form for another population. Research can only be generalized to a certain point outside of the sample being studied. Programs promoting physical activity may reach families that have unique needs and perceptions. Cultural bias can be avoided if attention is given to the particular experiences of the participants.

Comprehensive Program Delivery

Although this study has focused on parental influences, it is important to note there are multiple determinants, or correlates, of physical activity. Parents are a significant part of the YPAP model but only one piece in the larger picture (Figure 2, p.32). Personal, social, and environmental factors all affect physical activity participation. Access to parks and physical activity programs are needed. The children in this sample lacked consistent physical education classes and recess time, which negatively affected their general activity scores. Other reinforcing factors such as peers, coaches, teachers, and extended family are important. Personal characteristics including gender, age, race, ethnicity, and socioeconomic status have also been shown to affect participation. Further research needs to occur to continually clarify

the multiple correlates of physical activity behavior in children. Programs targeted at increasing children's physical activity levels need to be comprehensive.

The current health of children in North Carolina and across the United States is a serious concern. Research must be translated into practice to effectively fight the battle against childhood overweight by establishing healthier activity patterns for all families. Results of this study supported previous findings that parents significantly influence the physical activity behavior of children. Children across all races, ethnicities, and socioeconomic status are at risk for sedentary lifestyles and overweight. Physical activity research must extend cross-culturally to examine the unique experiences of all individuals and embrace diversity. There is still much knowledge to be gained concerning the impacts of culture on physical activity behavior. If researchers and practitioners work together in increasing physical activity levels, positive, long lasting changes will be made to improve the quality of life for children.

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Appendix A

North Carolina State University
INFORMED CONSENT FORM for RESEARCH

Parental Influences on Children's Physical Activity LevelsMillie Smith and Dr. Edwin Lindsay, Department of Parks, Recreation and Tourism Management

We are asking you to participate in a research study. The purpose of this study is to examine the various influences that parents have on their children's physical activity levels. We are studying 3rd-6th graders at SPARC Academy.

INFORMATION

If you agree to participate in this study, you will be asked to complete a brief questionnaire concerning your own interest in physical activity and your influences on your child's physical activity levels. You are also asked to give permission for your child (children) to complete a questionnaire concerning their own beliefs and interest in physical activity. The parent questionnaire will take 20 minutes and will be sent home in your child's take home information. Your child's questionnaire will be given during one class period in their regular school day. Your child (children) will also be given the chance to sign their own consent form the day the questionnaire is given in class.

RISKS

There are no risks associated with this study.

BENEFITS

There is no immediate benefit from your participation in filling out the questionnaire. Hopefully, the information found will help in encouraging kids to be more physically active and can help guide any programs that your child may have access to in the future.

CONFIDENTIALITY

The information in the study records will be kept strictly confidential. Data will be stored securely in computers only accessed by the principal investigators. No reference will be made in oral or written reports, which could link you to the study.

CONTACT

If you have questions at any time about the study or the procedures, you may contact the researchers, Millie Smith or Dr. Edwin Lindsay at 515-3276, NCSU Box 8004, Department of Parks, Recreation, and Tourism Management, Raleigh, NC 27695. If you feel you have not been treated according to the descriptions in this form, or your rights as a participant in research have been violated during the course of this project, you may contact Dr. Matthew Zingraff, Chair of the NCSU IRB for the Use of Human Subjects in Research Committee, Box 7514, NCSU Campus (919/513-1834) or Mr. Matthew Ronning, Assistant Vice Chancellor, Research Administration, Box 7514, NCSU Campus (919/513-2148)

PARTICIPATION

Your participation in this study is voluntary; you may decline to participate without penalty. If you decide to participate, you may withdraw from the study at any time without penalty. If you withdraw from the study before data collection is completed your data will be returned to you or destroyed at your request.

CONSENT

"I have read and understand the above information. I have received a copy of this form. I agree to participate in this study and to let my child (children) participate in this study with the understanding that we may withdraw at any time."

Parent's signature _____ Date _____

Name of your child/children and their grade level _____

Project Coordinator's signature _____ Date _____

Appendix B

**North Carolina State University
CHILD ASSENT FORM for RESEARCH**

I, _____, understand that my parents have said its okay for me to take part in a research project about physical activity done by NC State University.

I am taking part because I want to, and have been told that I can stop at any time I want to and I won't get in trouble.

Signature

Appendix C

Instructions for Survey Administration

1. Introductions:
 - Names/NC State University.
 - THANK YOU for getting your parents to sign the forms!
 - We are doing a project on what kids in the third-sixth grade think about physical activity.
 - You will receive free NC State pencils and/or balloons when we are finished.

2. Test versus Survey:
 - I know in school you take tests where you want to know the right answer.
 - Surveys are different. On this survey you want to give your opinion. There are no right or wrong answers. You are experts on what kids in the X grade think so tell us your opinions about physical activity. Remember, each of you in this room is a different person so you will be putting down different answers from your neighbor.

3. Define physical activity:
 - Physical activity is anything that gets your body and your muscles moving. Sports, raking the yard, dance, PE class, sweeping the floor, running, skipping, jumping, playing are just a few examples.

4. Assent form
 - Parents signed a form but we want you to sign your own form too.
 - Read assent form aloud and ask for signatures—print or cursive.

5. Survey:
 - Flip over green page. No names on the top please.
 - I will read the questions aloud while X researcher walks around to make sure everyone is doing ok, X is not checking for right or wrong answers. Please raise your hands if you have any questions.

Part one: Read directions aloud. Read questions (3-4 grades). Be sure to only fill in one circle per row.

((Quick break))

Part two: First let me explain how these questions work. There is a sample question at the top beside the big X. I'll read it aloud and you follow along with me. (Read ice cream sample question). This question talks about two kinds of kids, and we want to know which kids are most like you.

So, what I want you to decide first is whether you are more like the kids on the left side, who like to eat ice cream more than anything else, or whether you are more like the kids on the right side who like other foods more than ice cream. Don't mark anything yet, but decide which kind of kid is most like you, and go to that side of the page.

Now, the second thing I want you to think about is to decide whether that is only sort of true for you, or really true for you. If its only sort of true, then put an X in the box under sort of true; if it's really true for you, put an X in that box under really true.

For each numbered sentence, you only choose ONE box. Sometimes it will be on one side of the page, and sometimes it will be on the other side. You don't check both sides, just the ONE side that is most like you.

Ok, that was for practice, now I will read each one out loud. For each sentence, check only one box, the one that you are most like.

LET US CHECK OVER YOUR PAPER BEFORE YOU LEAVE ...THANK YOU!!

Note: Instructions were adapted from the manual for the Self Perception Profile for Children (Harter, 1985, p. 11).

Appendix D

Youth Physical Activity Survey

Part 1

We are trying to find out about your level of physical activity from *the last 7 days* (in the last week). This includes sports or dance that make you sweat or make your legs feel tired, or games that make you breathe hard, like tag, skipping, running, climbing, and others.

Remember:

There are no right and wrong answers — this is not a test!

Please answer all the questions as honestly and accurately as you can — this is very important.

1. Physical activity in your spare time: Have you done any of the following activities in the past 7 days (last week)? If yes, how many times? (Mark only one circle per row.)

| | No | 1-2 | 3-4 | 5-6 | 7 times or more |
|----------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Skipping | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Rowing/canoeing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| In-line skating | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tag | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Walking for exercise | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Bicycling | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Jogging or running | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Aerobics | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Swimming | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Baseball, softball | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Dance | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Football | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Badminton | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Skateboarding | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Soccer | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Street hockey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Volleyball | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Floor hockey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Basketball | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ice skating | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Cross-country skiing | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Ice hockey | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Other: | | | | | |
| _____..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| _____..... | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

2. In the last 7 days, during your physical education (PE) classes, how often were you very active (playing hard, running, jumping, throwing)? (Check one only.)

- I don't do PE
- Hardly ever
- Sometimes
- Quite often
- Always

3. In the last 7 days, what did you do most of the time *at recess*? (Check one only.)

- Sat down (talking, reading, doing schoolwork)...
- Stood around or walked around
- Ran or played a little bit
- Ran around and played quite a bit
- Ran and played hard most of the time

4. In the last 7 days, what did you normally do *at lunch* (besides eating lunch)? (Check one only.)

- Sat down (talking, reading, doing schoolwork)...
- Stood around or walked around
- Ran or played a little bit
- Ran around and played quite a bit
- Ran and played hard most of the time

5. In the last 7 days, on how many days *right after school*, did you do sports, dance, or play games in which you were very active? (Check one only.)

- None
- 1 time last week
- 2 or 3 times last week
- 4 times last week
- 5 times last week

6. In the last 7 days, on how many *evenings* did you do sports, dance, or play games in which you were very active? (Check one only.)

- None
- 1 time last week
- 2 or 3 times last week
- 4 or 5 last week
- 6 or 7 times last week

7. *On the last weekend*, how many times did you do sports, dance, or play games in which you were very active? (Check one only.)

- None
- 1 time
- 2 — 3 times
- 4 — 5 times
- 6 or more times

8. Which *one* of the following describes you best for the last 7 days? Read *all five* statements before deciding on the *one* answer that describes you.

- A. All or most of my free time was spent doing things that involve little physical effort
- B. I sometimes (1 — 2 times last week) did physical things in my free time (e.g. played sports, went running, swimming, bike riding, did aerobics)
- C. I often (3 — 4 times last week) did physical things in my free time
- D. I quite often (5 — 6 times last week) did physical things in my free time
- E. I very often (7 or more times last week) did physical things in my free time ...

9. Mark how often you did physical activity (like playing sports, games, doing dance, or any other physical activity) for each day last week.

| | None | Little bit | Medium | Often | Very often |
|-----------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| Monday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Tuesday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Wednesday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Thursday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Friday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Saturday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Sunday | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

10. Were you sick last week, or did anything prevent you from doing your normal physical activities? (Check one.)

- Yes
- No

If Yes, what prevented you? _____

Youth Physical Activity Survey

Part 2

The following questions ask you about your interests in physical activity.

Instructions:

Please read the sample question below.

Decide which of the two children is most like you.

Once you pick a side, decide whether this is “really true” or just “sort of true”.

Please choose only one answer.

Remember there are no right or wrong answers; simply choose the one that is best for you.

| | <i>Really true for me</i> | <i>Sort of true for me</i> | | <i>BUT</i> | | <i>Sort of true for me</i> | <i>Really true for me</i> |
|-----------|---------------------------|----------------------------|--|------------|--|----------------------------|---------------------------|
| | | | SAMPLE | | SAMPLE | | |
| | | X | Some kids like to eat ice cream more than anything else. | | Other kids like other foods more than ice cream | | |
| 1. | | | <i>Some kids have more fun playing games and sports than anything else.</i> | BUT | <i>Other kids like doing other things.</i> | | |
| 2. | | | <i>Some kids don't like to exercise very much.</i> | BUT | <i>Other kids like to exercise a whole lot.</i> | | |
| 3. | | | <i>Some kids get told by other kids that they are not very good at games and sports.</i> | BUT | <i>Other kids are told that they are good at games and sports.</i> | | |
| 4. | | | <i>Some kids get teased by other kids when they play games and sports.</i> | BUT | <i>Other kids don't get teased when they play games and sports.</i> | | |
| 5. | | | <i>Some kids have parents who get a lot of exercise.</i> | BUT | <i>Other kids have parents who don't get a lot of exercise.</i> | | |
| 6. | | | <i>Some kids think that the more exercise they get the better.</i> | BUT | <i>Other kids think that it is not good to get a whole lot of exercise.</i> | | |
| 7. | | | <i>Some kids do very well at all kinds of sports.</i> | BUT | <i>Other kids don't feel that they are very good when it comes to sports.</i> | | |
| 8. | | | <i>Some kids have parents who let them play on community or school sport teams.</i> | BUT | <i>Other kids have parents who don't let them play on school or community sport teams.</i> | | |
| 9. | | | <i>Some kids don't enjoy exercise very much.</i> | BUT | <i>Other kids enjoy exercise a whole lot.</i> | | |

| | <i>Really true for me</i> | <i>Sort of true for me</i> | | BUT | | <i>Sort of true for me</i> | <i>Really true for me</i> |
|------------|---------------------------|----------------------------|--|------------|---|----------------------------|---------------------------|
| 10. | | | <i>Some kids have parents who play games and sports with them.</i> | BUT | <i>Other kids have parents who don't play games and sports with them.</i> | | |
| 11. | | | <i>Some kids have parents who are in really good shape.</i> | BUT | <i>Other kids have parents who aren't in such good shape.</i> | | |
| 12. | | | <i>Some kids have parents that don't help them much with sports.</i> | BUT | <i>Other kids have parents that help them a lot with sports.</i> | | |
| 13. | | | <i>Some kids don't like to run very much.</i> | BUT | <i>Other kids do like to run a whole lot.</i> | | |
| 14. | | | <i>Some kids don't like getting out of breath after they play hard.</i> | BUT | <i>Other kids don't mind getting out of breath after they play hard.</i> | | |
| 15. | | | <i>Some kids wish they could be a lot better at sports.</i> | BUT | <i>Other kids feel they are good enough at sports.</i> | | |
| 16. | | | <i>Some kids have parents who buy them a lot of sports equipment.</i> | BUT | <i>Other kids have parents who don't buy them much sports equipment.</i> | | |
| 17. | | | <i>Some kids have parents who don't take them to parks or playgrounds.</i> | BUT | <i>Other kids have parents who take them to parks and playgrounds a lot.</i> | | |
| 18. | | | <i>Some kids have parents who tell them that they are good at games and sports.</i> | BUT | <i>Other kids have parents who don't tell them that they are good at games and sports.</i> | | |
| 19. | | | <i>Some kids think it is very important to always be in good shape.</i> | BUT | <i>Other kids don't think it is so important to always be in good shape.</i> | | |
| 20. | | | <i>Some kids have parents that don't encourage them to play outside.</i> | BUT | <i>Other kids have parents who frequently encourage them to play outside.</i> | | |
| 21. | | | <i>For some kids, playing games and sports is their favorite thing.</i> | BUT | <i>Other kids like other things more than games and sports.</i> | | |
| 22. | | | <i>Some kids are popular with other kids when they play games and sports.</i> | BUT | <i>Other kids are not very popular with other kids when they play games and sports.</i> | | |
| 23. | | | <i>Some kids have parents that practice games and sports skills with them a lot.</i> | BUT | <i>Other kids have parents that don't practice games and sports skills with them very much.</i> | | |
| 24. | | | <i>Some kids look forward to playing games and sports.</i> | BUT | <i>Other kids don't look forward to playing games and sports.</i> | | |

| | <i>Really true for me</i> | <i>Sort of true for me</i> | | BUT | | <i>Sort of true for me</i> | <i>Really true for me</i> |
|-----|---------------------------|----------------------------|--|------------|--|----------------------------|---------------------------|
| 25. | | | <i>Some kids really don't like to exercise.</i> | BUT | <i>Other kids do like to exercise.</i> | | |
| 26. | | | <i>Some kids have parents that like to walk for exercise.</i> | BUT | <i>Other kids have parents that don't like to walk for exercise.</i> | | |
| 27. | | | <i>Some kids think they could do well at just about any new sports activity they haven't tried before.</i> | BUT | <i>Other kids are afraid they might not do well at sports they haven't ever tried.</i> | | |
| 28. | | | <i>Some kids feel bad when they run hard.</i> | BUT | <i>Other kids feel good when they run hard.</i> | | |
| 29. | | | <i>Some kids try hard to stay in good shape.</i> | BUT | <i>Other kids don't try hard to stay in good shape.</i> | | |
| 30. | | | <i>Some kids have parents who want them to play outside.</i> | BUT | <i>Other kids have parents who usually want them to play inside.</i> | | |
| 31. | | | <i>Some kids have parents who don't like to do much physical activity.</i> | BUT | <i>Other kids have parents that like to do a lot of physical activities.</i> | | |
| 32. | | | <i>Some kids feel that they are better than others their age at sports.</i> | BUT | <i>Other kids don't feel that they can play as well.</i> | | |
| 33. | | | <i>Some kids have parents that tell them not to watch too much TV.</i> | BUT | <i>Other kids have parents that let them watch TV as much as they want.</i> | | |
| 34. | | | <i>Some kids have parents that usually walk or bike a lot.</i> | BUT | <i>Other kids have parents who don't walk or bike much.</i> | | |
| 35. | | | <i>In games and sports some kids usually watch instead of play.</i> | BUT | <i>Other kids usually play rather than watch.</i> | | |
| 36. | | | <i>Some kids have parents who remind them to do some physical activity.</i> | BUT | <i>Other kids have parents that don't remind them much about physical activity.</i> | | |
| 37. | | | <i>Some kids have parents that would rather walk to the store if possible.</i> | BUT | <i>Other kids have parents who will always drive a car instead of walking.</i> | | |
| 38. | | | <i>Some kids have parents who encourage them to try hard at games and sports.</i> | BUT | <i>Other kids have parents who don't encourage them very much at games and sports.</i> | | |
| 39. | | | <i>Some kids don't do well at new outdoor games.</i> | BUT | <i>Other kids are good at new games right away.</i> | | |

Age: _____ Grade: _____ Boy ____ Girl ____

How do you describe yourself? (Please check one or more blanks)

_____ American Indian or Alaska Native

_____ Asian

_____ Black or African American

_____ Native Hawaiian or Pacific Islander

_____ Hispanic or Latino

_____ White

_____ Other _____