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### Gender and Race Patterns in the Pathways from School- Based Sports Participation to Self-Esteem

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Sports Participation to Self-Esteem

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## ABSTRACT

Data from the National Longitudinal Study of Adolescent Health on Caucasian and African American girls and boys were employed to test two hypotheses. (1) School attachment and a sense of physical well-being mediate the relationship between sports participation and self-esteem. (2) There are gender and race differences in the processes through which school attachment and physical well-being mediate the relationship between sports participation and self-esteem. Both hypotheses were confirmed. School attachment and physical well-being absorbed the statistical effect of participating in a sport for all four gender-by-race groups. Among Caucasian girls a negative residual effect of sports participation was observed, which suggests that sports participation encapsulates multiple effects with contradictory influences. For African American girls school attachment by itself was not a significant contributor to self-esteem; its impact was significant only in conjunction with physical well-being. For all groups a sense of physical well-being was the more powerful contributor to self-esteem.

## Gender and Race Patterns in the Pathways from Sports Participation to Self-esteem

One of the justifications given for funding school-based athletic programs is that they boost self-esteem. This viewpoint gained greater prominence in 1961 when Coleman reported the centrality of athletics in the status system of American high schools for boys. Research has since provided evidence to support the claim that sports participation is associated with higher self-esteem for both boys and girls. For example, Gruber's (1986) meta-analysis of the outcomes of physical activity showed that higher self-esteem was associated with engaging in physical activity even for elementary school-aged children (and more so for children from economically disadvantaged families, and those with mental or physical disabilities). McAuley (1994) also examined the outcomes of many studies to arrive at a similar conclusion that higher self-esteem was one of the several positive outcomes of engaging in physical activity. While physical activity can take place outside of participation in a sport and sport teams exist outside of schools, in this paper we focus on participation in school-sponsored sports as the major vehicle through which adolescents get physical activity.

Because Coleman's findings (1961) were about boys and, even after the passage of Title IX, more boys than girls participate in interscholastic athletics (President's Council on Physical Fitness and Sports 1997), a number of studies have specifically focused on examining the relationship between sports and self-esteem for girls. Three studies conducted at the Melpomene Institute (Jaffee and Manzer 1992; Jaffee and Rickert 1993; Jaffee and Wu 1996) examined the relationship between self-esteem and physical activity among girls in relatively small but racially, economically, and geographically diverse samples of girls. All three studies found a strong positive relationship between physical activity and self-esteem. Erkut, Fields, Sing, and

Marx (1996) also documented, in a racially, economically, and geographically diverse sample of girls, aged 6 to 18, that the most frequently given response to the open-ended probe, “Tell me about an activity that makes you feel good about yourself,” referred to an physical activity.

Covey and Feltz (1991) found in their sample of high school adolescent girls that the physically active group reported significantly more positive self-image and coping characteristics than the physically inactive group. While this body of research suggests that for both boys and girls physical activity (by itself or physical activity associated with participation in sports) and self-esteem are positively related, the psychosocial mechanisms underlying this relationship are less clear.

### **School Attachment**

Marsh's (1993) analysis of the High School and Beyond data collected in 1980-1984 suggests that school attachment may be a mechanism that mediates the relationship between sports participation and self-esteem. He found that sports participation in high school was positively related to a number of senior year and post-secondary outcomes including self-esteem and academic achievement. He reported that these results, which held across race, gender, social class and school-related factors, were mediated by academic self-concept and educational aspirations, which led him to interpret the positive impact of sports participation in terms of school attachment. Snyder and Spreitzer's (1992) analysis of the High School and Beyond data also lends support to the hypothesis that school attachment mediates the association between sports participation and self-esteem. The researchers found that when they classified male high school students into four groups — scholar-athletes, pure scholars, pure athletes, and nonscholar-nonathletes — the scholar-athletes and pure scholars were found to exhibit the highest scores on self-esteem. Pure athletes exhibited lower scores than pure scholars while the nonscholar-

nonathlete group had the lowest scores. These findings suggest that athletic prowess alone may not be sufficient for high self-esteem and that an academic orientation is a necessary component of the self-esteem of high school athletes. There is an additional, methodological, reason to expect that attachment to school would play a key role in the relationship between participation in a school sport and self-esteem. This is because attachment to school is salient when the data are collected in a classroom during the school day.

Social control theory as articulated by Hirschi (1972) offers theoretical insights as to why school attachment might mediate sports participation and self-esteem. Hirschi has argued that adolescents with strong bonds to society are more likely to engage in socially approved behavior, and less likely to engage in socially sanctioned behavior. These bonds are established with family and peers and also with social institutions such as schools. Secondary schools in the U.S. value and reward students who participate in sports, such that adolescents who behave in ways that are socially approved in school receive rewards for their conformity. Consequently, they become attached to the institution that rewards them and the rewards make them feel good about themselves. [Coleman's (1961) finding about male athletes' popularity is an example of the reward for conformity to the high value that institutions of secondary education place on sports participation.]

Figueira-McDonough (1983) has suggested a theoretical link between school attachment and self-esteem, derived from Merton's (1938) anomie theory of deviance. Merton postulated that acceptance of socially approved goals and the commitment to socially approved means of achieving these goals produce social conformity. On the other hand, belief in the same all-American goals but not having access to socially approved means for achieving them can lead some people to "innovate" through ways of getting ahead that are not socially approved. The

latter option was one of Merton's explanations for deviance. Figueira-McDonough (1983) argues that, in the high school context, when good grades are operationalized as the criterion of success — the Mertonian socially approved goal — school attachment can be viewed as commitment to socially approved means to achieving this goal. She suggests that self-esteem is the psychological link between the socially approved goal of academic success and the socially approved means of attachment to school.

Even though Hirschi's social control theory and Merton's theory of anomie differ in their explanations of deviance, both theories agree on social consequences of conformity: rewards follow socially approved behavior. The implication for high school student athletes is that once they make a commitment to uphold the system that rewards them for participating in sports, which implies increased school attachment, they become committed to other values upheld by the school, which include an emphasis on academic success. In turn, attachment to an institution that supports and rewards them is associated with increased self-esteem.

### **Physical Well-being**

Advocates of school athletics also justify sports programs in terms of producing healthy bodies. In this study we postulate that a sense of physical well-being is one of the mediators between sports participation and self-esteem. We argue that physical activity that comes with participating in a sport generates a sense of physical fitness and a conviction that one's body is healthy, coordinated, and energetic. In turn, these positive views of the body are associated with self-esteem. Evidence for the view that fitness and health are associated with self-esteem comes from McDonald and Thompson's (1992) study of physically active college students. The researchers found that exercising for health was associated with self-esteem, but exercising for weight, body tone, and to become more attractive was not. Indeed, in this study, overall activity

level was related to greater eating disturbance for women, who tended to be more likely than male college students to claim that they exercised for weight control. Harris' (1995) study with African American female college students also underscores the relationship between self-esteem and physical health. She found a positive relationship between social self-esteem — as measured by the Helmreich and Stapp's (1975) Texas Social Behavior Inventory -- and ratings of physical health as important and with engagement in health enhancing behaviors.

Rosenthal and Smith (1996) studied 15–16-year-old Australian high school students' ratings of their health. They found that adolescents who rated their health as better than their peers were more likely to report exercising frequently and engaging in the health promoting behaviors of eating in accordance with the demands of their sports training. In contrast, adolescents who rated their health as being poor also reported engaging in such health-limiting behaviors as illicit drug use and minimal exercise. The health benefits of physical activity have been amply documented (Berlin and Colditz 1990; Fletcher, Balady, Blair, Blumenthal, Caspersen, Chaitman, Epstein, Sivarajan Froelicher, Froelicher, Pina and Pollock 1996; Frisch, Wyshak, Albright, Albright, Schiff, Jones, Witschi, Shian, Koff and Marguglio 1985; NIH Consensus Conference 1996; Powell, Thompson, Caspersen, and Kendrick 1987; Wyshak and Frisch 2000). In spite of this connection, research on the link between athletic activity and physical well-being is sparse in the literature on health promotion. Physical well-being has rarely been the focus of research on the association between and physical activity and physical health; rather the focus has been on the association between obesity and inactivity (see for example, Gortmaker, Peterson, Wiecha, Sobol, Dixit, Fox and Laira 1996). Cogan (1999; Cogan and Ernsberger 1999) and Ernsberger (Ernsberger and Koletsky 1999) have criticized the dominant paradigm in health promotion as overly focused on weight loss. Ernsberger and Koletsky (1999),

for example, recommend, instead, a focus on physical wellness that encompasses healthy lifestyles, positive attitudes to health and self-care, and a disregard of predetermined weight standards. Thus, our focus on physical well-being as a concomitant of physical activity, which is, in turn, associated with self-esteem, is in line with this shifting emphasis in health promotion on physical wellness in contrast to weight control.

Even beyond the overemphasis on obesity that has led to studies of physical activity as a means of achieving weight control, the association between athletic activity and a sense of physical well-being has not been studied extensively because it is assumed to exist — physical activity and improved health are assumed to go hand in hand. What has received attention from researchers are circumstances in which physical activity is not associated with physical well-being, especially among elite athletes who compete at high levels. Prominent among these are studies of the female athlete triad syndrome — eating disorders, amenorrhea, and premature osteoporosis associated with very low body fat achieved through excessive exercise and low food intake (Anderson 1999; Hobart and Smucker 2000; Nattiv and Lynch 1994). Disordered eating — to gain or to lose weight depending on the type of sport — has also been studied outside of the female athlete triad (Brooks-Gunn, Burrow, and Warren 1988; Brownell and Rodin 1992; Oppliger, Landry, Foster, and Lambrecht 1993; Thompson and Sherman 1999). The use of anabolic steroids among male and also a few female athletes has been another research focus (Fisher, Juszczak, and Friedman 1996; Johnson, Jay, Shoup, and Rickert 1989; Krowchuk, Anglin, and Goodfellow 1989). These topics have been studied because they contradict the accepted wisdom that physical activity is good for health.

Another line of research that has received attention as a correlate of both physical activity and self-esteem is satisfaction with one's body (Harter 1999; Usmiani and Daniluk 1997;

Williams and McGee 1991). A thin girl and a boy with well-developed muscles remain the ideal body types for adolescents and young adults. Adolescents with these body types are more satisfied with their bodies and do have higher self-esteem (Paxton, Wertheim, Gibbons, Szmukler, Hillier and Petrovich 1991). However, aspiring to attain an ideal body type is problematic for self-esteem, and especially so for girls (McDonald and Thompson 1992; Grant, Lyons, Landis, Cho, Scuderio, Reynolds, Murphy and Bryant 1999). It is for this reason that we have identified a health-related focus on physical activity as a mediator for self-esteem, rather than a body image or physical attractiveness focus.

The association of the health-related focus of physical well-being as a mediator between physical activity and self-esteem can be explained through the self-systems theory of self-esteem. This theory addresses the development of children and adolescents' self-understanding. As articulated by Damon and Hart (1988), and Connell and Wellborn (1991), it refers to internalization of children's perceptions of significant others' view of them, the "me-self," which, through the process of internalization, becomes the "I-self." The self-systems approach to self-esteem postulates that the "healthiest developmental course is one in which realistic standards and positive opinions of others are internalized, such that they become truly self-evaluations that the child comes to personally own" (Harter 1999:337). Connell and Wellborn (1991) emphasize that the motivational bases of a self-system include three fundamental psychological needs: competence, autonomy, and relatedness. Viewed from this perspective, a focus on physical well-being reflects an internalization of what is good for the person — a body that is energetic and healthy, which is relatively independent of others' evaluative opinions. Participating in sports because it is good for your health satisfies the competence and autonomy motives, and to some extent the relatedness motive because school sports are carried out in a

social milieu. In contrast, a focus on body image and attractiveness inevitably subjects young people to the vagaries of the “me-self,” where one’s worth fluctuates with how others view and value the person. Such a focus may meet the needs of relatedness, but not necessarily competence, and certainly not autonomy. Thus, we propose that physical well-being, rather than body image or attractiveness, mediates the relationship between sports participation and self-esteem.

### **Gender and Race Patterns in Self-Esteem**

Research on gender and race differences in self-esteem point to the need to examine gender and race patterns in the mediated relationship. Kling, Hyde, and Showers’ (1999) meta-analysis of gender differences in self-esteem has conclusively documented a finding observed in many studies (e.g., AAUW 1991; Polce-Lynch, Myers, Kliewer, and Kilmartin 2001): Boys have slightly higher self-esteem than girls, and this small difference increases with age during adolescence. With respect to race, studies comparing the self-esteem of African American and Caucasian samples have found differences favoring African American children and adolescents (AAUW 1991; Simmons, Brown, Bush, and Blyth 1978). Moreover, regarding the underlying bases of self-esteem, research has suggested that the strong reliance on physical attractiveness grounded in having a thin body is not as important a basis for African American girls’ self-esteem as it is for Caucasian girls’ (Erkut, Marx, Fields, and Sing 1999; Parker, Nichter, Nichter, Vuckovic, Sims and Ritenbaugh 1995). Indeed, Brown and her colleagues (Brown, McMahon, Biro, Crawford, Schrieber, Similo, Waclawiw and Striegel-Moore 1998) have observed that African American girls’ higher and more stable self-esteem and their greater satisfaction with their physical appearance compared to Caucasian girls may be a result of racial differences in attitudes toward physical appearance and obesity. Given the gender and race differences as well

as race patterns in the bases of self-esteem that have been documented, we expect differences by gender and race in the processes through which school attachment and physical well-being mediate the relationship between sports participation and self-esteem.

## **HYPOTHESES**

(1) School attachment and a sense of physical well-being mediate the relationship between sports participation and self-esteem.

(2) There are gender and race differences in the processes through which school attachment and physical well-being mediate the relationship between sports participation and self-esteem.

## **METHOD**

We used data from the National Longitudinal Study of Adolescent Health (Add Health)<sup>1</sup> (Bearman, Jones, and Udry 1997) to test the hypotheses. These data were collected to assess the health status of adolescents and to explore the causes and consequences of their health-related behaviors. We chose this data set because the data are from a nationally representative sample; they are relatively recent (1994–1996); and they are comprehensive. Moreover, they include oversampling of minority populations. The Add Health dataset was based on a clustered sampling design in which 80 high schools and 80 paired “feeder schools” (junior high schools that contributed students to the selected high schools) across the United States yielded a sample of 90,000 adolescents in grades 7–12. These students were given the in-school portion of the survey. Although no special efforts were made to recruit populations at risk for absenteeism or dropout, demographic and school data were available for students not captured by the in-school recruitment procedure. Given these demographic and student profiles of those excluded from the study, cases were weighted in a way to reflect the overall population of students.

## Sample

Our analyses are based on data taken from the in-school surveys of the Caucasian and African American adolescents with complete data on our study variables. We have restricted the analyses to these two groups because they are the only ones with large enough samples to permit a split half approach to model testing where two randomly split subsamples were created, one on which the model was tested, the second on which it was cross validated.<sup>2</sup> Respondents claiming membership in multiple racial/ethnic categories were not used in these analyses in order that we interpret the effects of race/ethnicity in our models more clearly. In the sample available to us there were 18,078 Caucasian girls, 17,566 Caucasian boys, 4,653 African American girls, and 3,535 African American boys. The mean age of the adolescents in our samples was 15.01 years (SE = 0.12).

### Constructs and Their Operational Definitions

Dependent variable. A composite variable indicating self-esteem was constructed using the mean of six items taken from Rosenberg's (1965) ten-item measure of general self-esteem.<sup>3</sup> The items assessed how strongly the respondent agreed or disagreed with statements such as "I have a lot of good qualities" and "I have a lot to be proud of." Response options ranged from 5 (strongly agree) to 1 (strongly disagree). A slight negative skew in this variable was corrected by truncating values lower than 2.5. The final score was rounded to the nearest .5 point in order to smooth the distribution. A higher score on the composite self-esteem scale indicated a stronger sense of self-esteem. The internal consistency coefficient for this scale was 0.86.

Independent variable. The in-school Add Health survey asked participants about involvement in sports in the context of 13 different school-sponsored teams. School-based sports participation was measured by constructing a variable based on the number of sports (of 13 types

of sports included in the Add Health questionnaire such as basketball, baseball, tennis, etc.) in which a respondent reported being currently involved, or intending to be involved, during the current academic year. We included respondents' intent to participate in the sports participation variable because of the seasonal nature of high school athletic offerings.<sup>4</sup> Because this variable was distinctly non-normal (a great many respondents indicated no participation in any sports or in only one sport and few indicated participation in greater numbers of sports), a dichotomous variable was created, which indicated sports participation (current or intended) in at least one sport versus no sports participation.

Mediator variables. Attachment to school was operationalized using the mean of five items, which had a response scale of 1 to 5. These items asked the respondent to rate the extent to which they agreed with such statements as "I feel close to people at this school" and "I feel like I am part of this school." A higher score on this scale indicated stronger feelings of attachment. The internal consistency coefficient for the attachment to school scale was .74.

The respondent's sense of physical well-being was operationalized by a composite of five items that indicated how strongly the adolescent agreed with statements such as "I have a lot of energy" and "I seldom get sick." Like the self-esteem variable, the indicator of physical well-being was slightly negatively skewed. Values lower than 2.5 were truncated and the final score was rounded to the nearest .5 point to smooth the distribution. A higher score on this variable indicated a greater sense of physical well-being. The internal consistency coefficient for the physical well-being scale was .73.

Control Variables. A number of other variables were used as controls in the analysis. These are variables that are known to have relationships with either the dependent, independent or mediating variables and/or reveal gender or race differences in these relationships. The control

variables include grade in school as a proxy for the respondent's age, because gender differences in self-esteem increase as function of age (Kling et al. 1999), and sports participation declines with age (Engel 1994). Also included among the controls because of demonstrated associations with self-esteem were participation in non-sport extracurricular activities (a dichotomous item coded one if participation in any of the listed non-sport activities was reported) and social desirability (a single dichotomous item coded one if the adolescent reported never having lied to a parent or guardian in the past twelve months) (Robins, Hendin, and Trzesniewski 2001; Seidman, Allen, Aber, Mitchell, and Feinman 1994; Tournois, Mesnil, and Kop 2000). Respondents reports of their residential mother/mother figure's educational attainment (as a proxy for socioeconomic status) and their living in a two-parent household (regardless of whether the parents were the respondent's biological parents) were included among the control variables, because there are race differences in SES and household composition (U.S. Bureau of the Census 2000). An indicator of whether the current school year marked the respondent's first year in his/her current school was included, because school transitions have been associated with a drop in self-esteem (Eccles and Midgley 1991; Simmons and Blyth 1987). Finally, an indicator of academic success was included, because both sports participation and self-esteem are associated with academic achievement (Marsh 1993). The mean of self-reported grades in English, Math, Social Studies, and Science were employed, where a grade of "A" was coded as "1," "B" as "2," "C" as "3," and "D or lower" as "4". The composite of academic success was truncated at a score of 2 to correct for a slight negative skew and rounded to the nearest .5 point in order to smooth the distribution.

Table 1 shows the means and their standard errors for each of the variables in the study. These means were compared across the race/gender groups by means of an ANOVA. Significant

differences were found in all group means except grade in school and mother's education, which did not differ across the groups. Bonferroni post hoc analyses show that girls of both races are more likely than boys to be involved in non-sport extracurricular activities. Boys were more likely than girls to be affected by a social desirability bias. African Americans were less likely than Caucasians to live in a two-parent household. Caucasian girls reported the highest grades in school, followed by Caucasian boys, African American girls and African American boys. African American boys, on the other hand, reported the highest levels of sports participation, followed by Caucasian boys and then girls of both races. African American girls reported lower school attachment than did any of the other groups. Caucasian boys reported the highest levels of physical well-being, followed closely by African American boys. Girls had the lowest physical well-being scores. African American boys reported the highest levels of self-esteem. African American girls and Caucasian boys had similar levels of self-esteem while Caucasian girls reported the lowest levels of self-esteem.

### **Analyses**

In order to establish the effect size of the association between sports participation and self-esteem, we calculated correlations between these variables for each of the four gender-by-race groups.<sup>5</sup> Then, regression models were tested in two steps. In the first model, sports participation and the control variables were used to predict self-esteem. In the second model, the hypothesized mediators, school attachment and physical well-being, were added to variables in the first model. By randomly splitting each race/gender group into two roughly equal parts, we were able to fit the models in the first subsample and cross-validate our results in the second subsample. We set the following criteria for judging whether the mediation hypothesis was confirmed: 1) sports significantly predicted self-esteem in the first model, 2) the sports effect

was significantly diminished when the mediating variables were added in the second model (see Baron & Kenny 1986 for a primer on how to test mediated models), and 3) the same patterns appeared in the cross-validation sample. The confirmation of the second hypothesis depended on the presence of significant gender and race differences in the mediated models.

## RESULTS

Direct Effects of Sports. The zero-order correlations between sports participation and self-esteem were highest for Caucasian boys ( $r = .19$ ) and African American boys ( $r = .18$ ), followed by Caucasian girls ( $r = .16$ ). The association between sports participation and self-esteem was lowest for African American girls ( $r = .09$ ).

Table 2 shows the results for the first set of models. Caucasian girls ( $B = 0.17$ ,  $SEB = 0.02$ ,  $p < .01$ ) and boys ( $B = 0.24$ ,  $SEB = 0.02$ ,  $p < .01$ ) and African American girls ( $B = 0.11$ ,  $SEB = 0.04$ ,  $p < .01$ ) and boys ( $B = 0.26$ ,  $SEB = 0.04$ ,  $p < .01$ ) all show a significant effect of sports participation on self-esteem in the model which includes the control variables. The control variables that make a significant contribution to one or more groups' self-esteem are grade in school, non-sport extracurricular activities, social desirability, mother's education, and academic success.

Mediated Sports Effects. In order to test the hypothesis that a significant sports effect is mediated, we added school attachment and physical well-being to the models previously tested (see Table 3). The drop in the sports coefficients show that the relationship between sports participation and self-esteem is significantly mediated for all four groups. In fact, the mediators account for the entire covariance between sports and self-esteem (i.e., the remaining sports effect is not significantly different from zero) for African American girls and boys<sup>6</sup> and for Caucasian boys. On the other hand, for Caucasian girls there remains a residual *negative* sports effect ( $B =$

-0.04,  $\underline{SEB} = 0.02$ ,  $p < .01$ ) after accounting for the mediating effects of physical well-being and school attachment. When the mediators are added to the model, the impact of control variables is decreased. The effect of previously significant control variables becomes trivially small, except for social desirability. Social desirability continues to be a significant factor in self-esteem but only for Caucasian girls and boys.

School attachment and physical well-being are moderately correlated (Caucasian girls,  $r = .47$ ; Caucasian boys,  $r = .42$ ; African American girls,  $r = .39$ ; African American boys,  $r = .42$ ) but distinct variables. To test the relative strength of the mediating effects of school attachment and physical well-being separately in the relationship between sports and self-esteem, we removed one and then the other from the mediated models (see Table 4). These follow-up models showed that the effect of sports on self-esteem is carried through each hypothesized mediator separately for Caucasians and for African American boys. We conclude this because, for these three groups, the regression coefficient for sports in the first model (without mediators) is significantly diminished when the mediators are included (i.e., the 95% confidence interval for the sports coefficient in the mediated model does not contain the value of the sports coefficient from the first model). For instance, for Caucasian girls, the initial sports effect ( $\underline{B} = 0.17$ ) is larger than the sports effect when mediated by school attachment alone ( $\underline{B} = 0.05$ , 95%  $\underline{CI} = 0.01, 0.09$ ) and also larger than the sports effect when mediated by physical well-being alone ( $\underline{B} = -0.01$ , 95%  $\underline{CI} = -0.05, 0.03$ ). Similarly, for Caucasian boys, the initial value of the sports coefficient ( $\underline{B} = 0.24$ ) is larger than the sports value when mediated by school attachment ( $\underline{B} = 0.10$ , 95%  $\underline{CI} = 0.06, 0.14$ ) and by physical well-being ( $\underline{B} = 0.08$ , 95%  $\underline{CI} = 0.04, 0.12$ ). Finally, the initial coefficient for the sports effect for African American boys ( $\underline{B} = 0.26$ ) is larger than the

sports value when mediated by school attachment ( $B = 0.15$ , 95%  $CI = 0.07, 0.23$ ) and by physical well-being ( $B = 0.15$ , 95%  $CI = 0.07, 0.23$ ).

However, for African American girls, only the mediating effect of physical well-being significantly explained the sports effect on self-esteem. For this group, the initial sports coefficient ( $B = 0.11$ ) was larger than the sports effect when mediated by physical well-being ( $B = 0.03$ , 95%  $CI = -0.03, 0.09$ ), but not significantly larger than the sports effect when mediated by school attachment ( $B = 0.08$ , 95%  $CI = 0.00, 0.16$ ).

## **DISCUSSION**

Our results show that the positive effect of sports participation on self-esteem in adolescence is present for both Caucasian and African American adolescents. Further, this effect can be explained sufficiently by the mediating variables of school attachment and physical well-being. Thus, our first hypothesis, which postulated that school attachment and physical well-being mediate the relationship between sports participation and self-esteem, is supported.

The results show that the two mediating variables have separate effects. They require different explanations for why they mediate the relationship between sports participation and self-esteem. We have argued, using social control theory, that attachment to school is associated with increased esteem because attachment is a concomitant of conformity to what the social institution of schools value. Schools in the U.S. value participation in extra-curricular activities such as a school sport. With increased conformity comes increased access to rewards in the system, such as academic achievement or popularity with peers and teachers. Access to such rewards makes young people feel good about themselves, which is manifested in high self-esteem.

Enhanced physical well-being that accompanies sports participation is likely to lead to increased self-esteem because, as predicted from the self-systems theory of the construction of self-esteem, participating in a sport is a positive contributor to having a healthy body, which one undertakes for one's self. It is likely to make a young person feel competent and autonomous, which are two of the three motivations proposed by Connell and Wellborn (1991) as underlying the motivational bases of the self-systems approach to self-esteem.

The second hypothesis of gender and race patterns in the mediated relationship is also supported. Although we found similarities across race and gender, there are, on closer inspection, gender, race, and gender-by-race differences in the mediated relationship. The similarities are in the initial relationships between sports participation and self-esteem and the finding that the mediating variables, school attachment and physical well-being, substantially reduce this relationship in all four gender by race groups. We describe the patterns of gender and race differences below for each gender and race group.

Caucasian girls. Caucasian girls had the lowest self-esteem levels of the four groups in the study, and their sense of physical well-being was also low (as was the physical well-being of African American girls). While the sports participation model (without the mediators but in conjunction with the control variable) was able to explain 9 percent of the variance in increased self-esteem for Caucasian girls, the mediated model explained 43%, which was the most variance in self-esteem explained by the mediated model in all four groups. In the mediated model, social desirability remained a significant factor for Caucasian girls but its effect was considerably smaller than the effect of school attachment and physical well-being.

In the mediated model an unexpected finding was obtained for Caucasian girls. When the mediating variables of school attachment and physical well-being were introduced, the net effect

of sports participation on self-esteem became negative. In other words, the positive effect of sports participation on self-esteem was absorbed by the mediating variables, leaving behind a negative residual. It appears that, for Caucasian girls, sports participation encapsulates multiple effects with contradictory influences. School attachment and physical well-being are two of the beneficial effects of sports participation that promote self-esteem. When these effects were statistically controlled, the remaining sports effect was negative. It may be that the unmeasured negative effect was the motivation to engage in physical activity to lose weight or to become more attractive, which has been found to be negatively associated with self-esteem (McDonald and Thompson 1992).<sup>7</sup> Thus, what we have found is that for Caucasian girls, sports participation enhanced self-esteem to the extent that it increased their school attachment and sense of physical well-being. However, there are other components to the impact of sports participation that were not so beneficial to self-esteem. Future research should focus on unraveling the residual negative effect of sports participation on self-esteem among Caucasian girls.

Caucasian boys. Caucasian boys had moderately high self-esteem, similar to African American girls but lower than African American boys. Their school attachment was high (similar to Caucasian girls, and African American boys), and they had the highest levels of physical well-being of all the groups. The sports participation model without the mediators but with the control variables explained 8% of the variance in their self-esteem scores whereas the mediated model explained 40%. For Caucasian boys, the mediated relationship reduced the impact of sports participation on self-esteem to insignificance. In the mediated model, physical well-being appeared to play a more important role than school attachment although both variables made significant contributions to the variance explained in self-esteem. Also in the mediated model, social desirability remained a significant factor but its effect was considerably smaller than the

effect of school attachment and physical well-being. Perhaps Caucasian boys' self-esteem benefits from their participation in sports due to the strong associations of sports participation with school attachment and physical well-being.

African American girls. African American girls had moderately high self-esteem, only second to that of African American boys, but their sense of physical well-being was low (similar to that of Caucasian girls) and their school attachment was the lowest of all four groups. The sports participation model was able to explain only 2% of the variance in African American girls' self-esteem. With the introduction of the mediators, school attachment and physical well-being, percentage of variance explained in self-esteem went up to 28% but this was still lower than the explanatory power of the mediated model in the other three groups. Unlike with Caucasian girls and boys, social desirability was not a factor in predicting the self-esteem of African American girls once the effects of school attachment and physical well-being were taken into account. Moreover, school attachment by itself did not have a significant effect on self-esteem for African American girls. Only when school attachment was paired with a sense of physical well-being did its effect become significant. African American girls were the only group for whom school attachment did not have a significant effect on self-esteem by itself. It appears that the variables in our models were not as strong predictors of African American girls' self-esteem as they were of the self-esteem of the other three groups. African American girls get their considerably high self-esteem from other sources than those included in this study. The mediated model was most effective in explaining Caucasian girls' self-esteem and least effective in explaining African American girls' self-esteem. Future research should examine which factors, in addition to physical well-being, contribute to African American girls' self-esteem.

African American boys. African American boys had the highest level of self-esteem of the four groups. Their school attachment was high and their sense of physical well-being was also moderately high. The sports participation model explained 6% of the variance in their self-esteem scores, but the mediated model explained 36%. This suggests that the variables in the study did a better job of explaining African American boys' self-esteem than that of African American girls, but this was still lower than the explanatory power achieved by the mediated model for Caucasian girls and boys. Similar to African American girls, social desirability was not a factor in predicting the self-esteem of African American boys.

### **Limitations**

Given that these are cross-sectional analyses, we cannot make statements about the causal direction of these relationships. It may be that other processes are at work. For instance, sports participation may mediate the relationship between physical well-being and self-esteem. Alternatively, school attachment and sports participation may be independently influenced by self-esteem. In order to tease apart the causal effects in this system of interrelationships, we plan to conduct further analyses using multiple waves of data.

The results obtained are also limited by the operationalizations of the constructs in the model. The sports participation variable employed in our models refers to self-reports of participating (or intending to participate in the current academic year) in a number of sports offered at the school. While all participants in sports can be considered physically active because they get exercise, not all who are physically active get their exercise by participating in a school sport. In this regard, the results of this study cannot be generalized to self-esteem implications of being physically active.

An additional limitation concerns the measure of self-esteem employed in the study. Self-esteem can be both global, such that it can be measured as a unidimensional construct, and specific, which requires a multidimensional measure (Harter 1999; Rosenberg, Schooler, Schoenbach, and Rosenberg 1995). We employed a global measure of self-esteem which measures how one feels about one's self in general. Researchers who have focused on specific dimensions of self-esteem have reported strong relationships between evaluations of the physical self-system (Sonstroem 1997a, 1997b) or athletic competence (Harter 1999) with physical activity, stronger than the relationship between general self-esteem and physical activity. In other words, the specific dimension of self-esteem that reflects the domain of physical competence is more closely related to being physically active. Indeed, Sonstroem (1997b) argues that evaluations of the physical self mediate the relationship between physical activity and general self-esteem. Future research should examine this specific dimension of self-esteem as a mediator alongside school attachment and physical well-being.

### **Implications**

The results of this study have implications for social interventions. When the goal is to increase self-esteem for boys and girls, Caucasians and African Americans, investing in sports programs is likely to pay off because participating in school sports is associated with attachment to school and a sense of physical well-being, both of which are associated with increased self-esteem. Directly investing in increasing school attachment and a sense of physical well-being are also likely to be highly successful, but without a sports component such programs may not be as popular and easy to fund. Since physical well-being was a more powerful mediator than school attachment for all gender and race groups, sports programs can incorporate messages about the health benefits of physical activity to achieve higher levels of impact.

The mediated model, which incorporates school attachment and physical well-being along with the control variables and sports participation, can explain between 28% to 43% of the variance in self-esteem among Caucasian and African American girls and boys. In this model a sense of physical well-being holds the most explanatory power for all four groups of adolescents. This is a finding that has important implications for understanding self-esteem in school settings. It appears that adolescents benefit psychologically from physical activities when their focus is on health, rather than more superficial concerns such as body image or physical attractiveness. The self-esteem benefits of a focus on physical well-being is in line with the shifting health promotion paradigm from a concern over weight control to a focus on physical wellness (Cogan 1999; Cogan and Ernsberger 1999). The new paradigm emphasizes healthy lifestyles, positive attitudes toward health and self-care in contrast to meeting predetermined weight standards (Ernsberger and Koletsky 1999). The results of this study bolster the new health promotion focus on physical well-being: Feeling healthy is better for you than looking good.

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TABLES

Table 1: Differences Among Analysis Variables (Adjusted for Nonprobability Sampling), by Race and Gender.

Variable	A		B		C		D		ANOVA	
	Caucasian girls ( <u>n</u> = 18,078)		Caucasian boys ( <u>n</u> = 17,566)		African American girls ( <u>n</u> = 4,653)		African American boys ( <u>n</u> = 3,535)		F (3,122)	Post hoc
	<u>Mean</u>	<u>SE<sup>a</sup></u>	<u>Mean</u>	<u>SE<sup>a</sup></u>	<u>Mean</u>	<u>SE<sup>a</sup></u>	<u>Mean</u>	<u>SE<sup>a</sup></u>		
Grade in school	9.65	0.13	9.71	0.12	9.62	0.21	9.59	0.21	0.90	
Non-sport extracurricular	0.68	0.01	0.46	0.01	0.66	0.02	0.44	0.02	253.93**	B,D<A,C
Social desirability	0.14	0.01	0.17	0.01	0.12	0.01	0.17	0.01	25.01**	A,C<B,D
Mother's education	0.43	0.02	0.43	0.02	0.41	0.03	0.41	0.03	0.19	
Two parent family	0.80	0.01	0.79	0.01	0.49	0.02	0.50	0.02	129.70**	C,D<A,B
Academic success	3.12	0.02	2.99	0.02	2.83	0.03	2.69	0.03	60.13**	D<C<B<A
Sports participation	0.56	0.02	0.65	0.01	0.53	0.02	0.70	0.01	65.70**	A,C<B<D
School attachment	3.47	0.03	3.51	0.02	3.32	0.04	3.48	0.03	20.07**	C<A,B,D
Physical well-being	3.74	0.01	4.09	0.01	3.72	0.01	4.01	0.01	448.40**	A,C<D<B
Self-esteem	3.75	0.01	3.97	0.01	3.99	0.02	4.13	0.02	158.48**	A<B,C<D

\*  $p < .05$ . \*\*  $p < .01$ .

Note: <sup>a</sup> Add Health data employs a clustered sampling design where different clusters yield different standard deviations. Therefore, standard error of the mean (SE) is the appropriate variability parameter to report.

Table 2: Linear Regression Coefficients for Models Predicting Self-Esteem, by Race and Gender (First Split Subsample).

Variable	Caucasian girls ( <u>n</u> = 9,085)		Caucasian boys ( <u>n</u> = 8,736)		African American girls ( <u>n</u> = 2,338)		African American boys ( <u>n</u> = 1,765)	
	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>
Intercept	3.28**	0.10	3.51**	0.07	3.72**	0.12	3.93**	0.12
Grade in school	-0.03**	0.01	-0.02**	0.01	-0.01	0.01	-0.03** <sup>a</sup>	0.01
Non-sport extracurricular	0.08**	0.02	0.03	0.02	-0.01	0.03	0.02	0.03
Social desirability	0.30**	0.03	0.22**	0.03	0.13*	0.06	0.09	0.06
Mother's education	0.07**	0.02	-0.00	0.02	0.01	0.03	-0.09**	0.03
Two parent family	0.03	0.02	0.02	0.03	0.02	0.03	0.03	0.03
Academic success	0.15**	0.01	0.14**	0.01	0.10**	0.03	0.12**	0.03
<u>Sports participation</u>	0.17**	0.02	0.24**	0.02	0.11**	0.04	0.26**	0.04
R <sup>2</sup>	0.09		0.08		0.02		0.06	

\*  $p < .05$ . \*\*  $p < .01$ .

Note: <sup>a</sup> This coefficient was not significant in the second randomly split subsample.

Table 3: Linear Regression Coefficients for Mediated Models Predicting Self-Esteem, by Race and Gender (First Split Subsample).

Variable	Caucasian girls (n = 9,085)		Caucasian boys (n = 8,736)		African American girls (n = 2,338)		African American boys (n = 1,765)	
	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>	<u>B</u>	<u>SEB</u>
Intercept	0.69**	0.11	1.13**	0.12	1.62**	0.12	1.78**	0.18
Grade in school	0.02**	0.01	-0.01*	0.01	0.00	0.01	-0.03** <sup>a</sup>	0.01
Non-sport extracurricular	0.00	0.02	-0.01	0.01	-0.03	0.03	-0.03	0.03
Social desirability	0.15**	0.03	0.13**	0.03	0.08	0.06	0.06	0.04
Mother's education	0.03	0.02	-0.00	0.02	-0.02	0.03	-0.08** <sup>a</sup>	0.03
Two parent family	-0.02	0.02	-0.02	0.03	-0.00	0.03	0.01	0.03
Academic success	0.05** <sup>a</sup>	0.01	0.05* <sup>a</sup>	0.02	0.02	0.02	0.07** <sup>a</sup>	0.03
<b>Sports participation</b>	-0.04**	0.02	0.01	0.02	0.03	0.03	0.10** <sup>a</sup>	0.03
School attachment	0.34**	0.01	0.28**	0.04	0.26**	0.03	0.28**	0.02
Physical well-being	0.41**	0.01	0.45**	0.02	0.38**	0.03	0.37**	0.03
$R^2$	0.43		0.40		0.28		0.36	

\*  $p < .05$ . \*\*  $p < .01$ .

Note: <sup>a</sup> This coefficient was not significant in the second randomly split subsample.

Table 4: Sports Effect on Self-Esteem, with and without Mediators.

	Caucasian girls ( <u>n</u> = 9,085)			Caucasian boys ( <u>n</u> = ,736)			African American girls ( <u>n</u> = 2,338)			African American boys ( <u>n</u> = 1,765)		
<u>Sports Effect (Direct)</u>	<u>B</u>			<u>B</u>			<u>B</u>			<u>B</u>		
Model with no mediators	0.17			0.24			0.11			0.26		
<u>Sports Effect (Mediated)</u>	<u>B</u>	<u>SEB</u> <sup>a</sup>	<u>95% CI</u>	<u>B</u>	<u>SEB</u>	<u>95% CI</u>	<u>B</u>	<u>SEB</u>	<u>95% CI</u>	<u>B</u>	<u>SEB</u>	<u>95% CI</u>
Model with School Attachment	0.05	0.02	<b>0.01,0.09</b>	0.10	0.02	<b>0.06,0.14</b>	0.08	0.04	0.00,0.16	0.15	0.04	<b>0.07,0.23</b>
Model with Physical Well-being	-0.01	0.02	<b>-0.05,0.03</b>	0.08	0.02	<b>0.04,0.12</b>	0.03	0.03	<b>-0.03,0.09</b>	0.15	0.04	<b>0.07,0.23</b>
Model with Both Mediators	-0.04	0.02	<b>-0.08,-0.00</b>	0.01	0.02	<b>-0.03,0.05</b>	0.03	0.03	<b>-0.03,0.09</b>	0.10	0.03	<b>0.04,0.16</b>

Note: <sup>a</sup> Bolded confidence intervals indicate a significantly mediated sports to self-esteem relationship (i.e., they do not contain the value of the sports coefficient obtained in the model with no mediators, see Baron & Kenny, 1986).

## NOTES

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<sup>1</sup> The Add Health project was designed by J. Richard Udry (PI) and Peter Bearman, and funded by grant P01-HD31921 from the National Institute of Child Health and Human Development to the Carolina Population Center, University of North Carolina at Chapel Hill. Persons interested in obtaining data files from The National Longitudinal Study of Adolescent Health can contact Jo Jones, Carolina Population Center, 123 West Franklin Street, Chapel Hill, NC 27516-3997 (email: jo\_jones@unc.edu).

<sup>2</sup> Our report of analyses of Latino and Asian/Pacific Island subgroups are forthcoming.

<sup>3</sup> In the interest of creating a survey instrument of that covers a broad array of topics more manageable for respondents to complete, the Add Health research team used selected items from previously developed scales. Because these revised scales may not be strictly parallel to the original scales, caution must be used in comparing across studies using the full scales.

<sup>4</sup> For example, a basketball player who completed the Add Health survey in the fall would have had to answer "NO" to the question on current participation in basketball and "Yes" to the question on intent, if her school offers girls basketball as a winter sport.

<sup>5</sup> These correlation coefficients were calculated from the R-squared value obtained when a single variable is used to predict an outcome in a regression equation. Since these analyses were conducted using SUDAAN, the square root of this value can be interpreted as a zero-order correlation corrected for design effects.

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<sup>6</sup>For African American boys there was a residual positive sports effect ( $B = 0.01$ ,  $SEB = 0.03$ ,  $p < .01$ ), but this effect did not replicate in the cross-validation sample.

<sup>7</sup>Whereas a controlling for body image would be an important theoretical and empirical first step in unpacking the residual negative effect, this question was not included in the Add Health survey.