

High School Sports and Educational Benefits: What We Really Know and Don't Know

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Note: This written summary was prepared to accompany a presentation for the 2012 [LA84 Foundation](#) National Summit on Academic Benefits of Sport, November 8, 2012. Do not quote or make excerpts without the permission of the author. sabod@dyc.edu or gradres@yahoo.com

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A good deal of previous research shows that adolescent participation in school sponsored sports favorably influences youth development (Feldman and Matjasko, 2005). Sports participation has been found to elevate adolescents' grades (Fejgin, 1994; Eccles & Barber, 1999, Lipscomb, 2007; Fox, Barr-Anderson, Neumark-Sztainer & Wall, 2010), enrollment in AP courses (Pearson, Crissey & Riegle-Crumb, 2009; Veliz & Shakib, 2012), commitment to graduating high school, (McNeal, 1995), educational aspirations and educational attainment (Otto & Alwin, 1977, Fejgin, 1994), attending college (Sabo, Melnick & Vanfossen, 1993, Eccles & Barber, 1999), and graduation from college (Spreitzer, 1994). Adolescent athletic participation among adolescents can also deter delinquency (Schafer, 1969; Landers & Landers, 1978; Hastad et. al., 1984; Holland & Andre, 1987; Fejgin, 1994; Baumert, Henderson & Thompson, 1998; Hartmann & Massoglia, 2007). Previous research also shows that social class differences, gender, and race and ethnicity influence the synergies between sports and educational outcomes (Miller, K., Melnick, M., Barnes, G., Farrell, M. & Sabo, D., 2005; Sabo, Melnick & Vanfossen, 1989; Sabo, Melnick & Vansfossen, 1992; Sabo, Melnick & Vanfossen, 1993; Sabo & Veliz 2008; Veliz, 2012).

Most of the research findings I just referred to are based on quantitative research or, put simply, statistical analyses of one sort or another. The research designs and statistical models built into these studies vary in strength, and the samples vary in size and representativeness. Some research findings on school sports show they are "associated" with educational gains for many young people, while other research findings (issuing from within more rigorous designs) point to the identification of "causal" connections between sports participation and educational outcomes. Nailing down "causal" relationships in social science is exceedingly complex. The bulk of social scientific research on youth sports is based on observation studies, miniscule samples, and ethnographies which, in my view and in the context of the basic guidelines inherent in scientific method, these studies lack generalizability, methodological credibility, and provide only a modest platform on which to formulate educational policy. On one hand, then, then, I can tell you that a body of social scientific research confirms that favorable synergies are at work between youth sport participation and educational benefits among U.S. youth. And yet, as is the case with most areas of scientific inquiry, the jury is still out and there's "more research to be done."

My "marching orders" for preparing comments for this national education summit were to critically summarize the existing research on links between youth sports participation and educational benefits. Another way to put this is for me to assess what the research tells us and does not tell us about how sports influence U.S. young people's educational experiences and accomplishments. Generally, epistemologists wonder about "justifiable belief" and the "conditions of knowledge, the sources, limits, and structure of knowledge" (Stanford Encyclopedia of Philosophy). I define epistemology as the study of how we know what we know and, on the flipside, why we often do not know what we think we know. George Bernard Shaw once quipped, "Every so often in the course of human evolution we have managed to

stumble over a truth, only to pick ourselves up again, and walk on as though we never saw it." What strikes us as obvious or apparent is not always so; e.g., that the sun moves around the earth (i.e., Copernicus begged to differ), that "up" is up and "down" is down (i.e., a sleeping resident of Antarctica may be in bed with her nose facing upward toward the sky but, at the same time, her back may be facing downward toward the North Pole). And so, in my not-so-humble view, knowledge is optimally generated through the scientific method.

Scientific method mobilizes culturally widespread, systematic, evidence-based, and methodologically logical processes that humans can use to describe and test their understandings of the world. I am dedicated to the use of scientific method in order to study youth sport and education. Researchers strive to describe reality in ways that seek to achieve objectivity. Objectivity is more of a goal than a reality. A refrain by rock-and-roll songwriter, Doc Pomus, goes, "We always see the way we want it to be." Researchers are not immune to this inclination, and solid design and methods aim to eliminate as much bias as possible. Put another way, the word "objective" (whether in science, journalism, or the assessment of a student's performance) means doing the best you can to eliminate bias as much as possible so that you end up describing reality as accurately as possible.

My modus operandi today is to present several examples of research findings that confirm some positive relationships between youth sports and educational outcomes and, at the same time, to show how complex the social worlds of youth sport and education are, and how nuanced and challenging it is for researchers to produce evidence-based findings on youth sport and education.

Dumb Jocks or Smart Athletes? A Tale of Two Hypotheses

In 1961 James Coleman published a book about the prominence of sports in American high schools. He studied 10 high schools in the Chicago area and by "sports" he really meant boys' sports. He concluded that involvement with sports eroded boys' academic performance. Later in the 1960's radical sociologist Harry Edwards described sports (and again, he meant boys' sports) as a "treadmill to oblivion" for young black males. He claimed that black males chased unrealistic athletic dreams and as a result crashed and burned academically and in life. The era of the presumed dumb jock and exploited black male athlete had begun. Coleman's insights and conclusions were based on a narrow, unrepresentative sample of schools in one urban area. Edwards's contentions derived from a sociological and historical analysis of racial inequality that was often applied to understanding race relations in Olympic, intercollegiate, and high school sports. It took sport researchers a couple of decades to take a fresh empirical look at the educational and academic outcomes of high school athletes and, even today, sport sociological "beliefs" about youth sport are often based on case studies and observation studies

rather than quantitative analyses of data that at least try to separate assumption or bias from inference through systematic hypothesis testing.

In an effort to throw new empirical light on these issues during the late 1980's, we initiated a nationwide longitudinal research study through the Women's Sports Foundation that analyzed the role of sport in the lives of America's minority youth—both girls and boys—and for the first time, Hispanics, African-Americans, as well as Caucasians. (The study was funded by Miller Brewing Company, and they kept their brand in the background given the focus on high school youth. It should be noted, however, that funding for sport research from either government or nonprofit sources simply was not available in the United States. Studying youth sport was not exactly a “taboo” topic among academics, but it was basically devalued and perceived as a mundane or non-essential academic line of inquiry.) We deployed the “gold standard” of research designs—a longitudinal panel design. Using data from the U.S. Department of Education High School & Beyond study (a data base generated by the National Center for Education Statistics) we followed an initial sample of more than 30,000 high school sophomores (1980) through their senior year (1982), and 2 and 4 years beyond high school (1984 & 86). Some major findings included:

The results showed that the dumb jock stereotype proved to be false. Minority athletes actually fared better academically than non-athletes. African-American and Hispanic athletes—among both boys and girls-- scored higher on standardized reading, vocabulary, and mathematics tests than their non-athletic counterparts. Sports involvement lowered the dropout rate among some minorities in suburban and rural schools...but not in urban schools. Indeed, depending on school location (i.e., urban, suburban, and rural) some racial and ethnic minorities seemed to benefit more academically from sports involvement such as Hispanic female athletes in rural and suburban schools, while black females and males in urban schools showed the least favorable educational benefits. (Interestingly, it was Willye White, the first American athlete to compete in 5 Olympics, 1956 to 1972, who convinced me to examine the influence of school location in our data analyses. When she first pushed me to include this variable in our research, I responded, “It makes a certain amount of sense, but there's nothing in the research literature that focuses on school location.” To put it mildly, she would not take “no” for an answer. We included “school location” in our multifactorial statistical analyses, and it turned out to be the most powerful predictive variable in the study!)

The results were promising but also complicated. Subsequent research shows that the economic resources of schools and school districts clearly exert an influence on the real and potential educational impacts of sports participation. Gender, race and ethnicity, and school location (i.e., urban, suburban, rural, town) can mediate the educational and developmental influences of sport. I vividly recall testing 26 hypothesized differences between high school

athletes and non-athletes with regard to psychological well-being (i.e., self-esteem and depression). The crosstabular analyses we ran before lunch revealed moderate-to-strong associations between sports participation and favorable psychological gains. The initial results made us two giddy researchers. After lunch, we deployed multifactorial analyses of the same hypotheses (which included controls for gender, race/ethnicity, and socioeconomic status differences), and all the significant differences between athletes and non-athletes disappeared. We realized that the original associations with psychological gains were primarily explained by the fact that most of the young people who participated in U.S. high school sports came from middle- and upper-class backgrounds, which were more responsible for their psychological well-being than sports participation directly. The after-lunch statistical analyses wiped the smiles off our perplexed-but-wiser faces.

Some Current Research: Youth Sports Are Making an Educational Difference

In 2012 I put together a research team to design and conduct a study for the USTA Serves, which is a nonprofit arm of the United States Tennis Association. The USTA Serves does just that—it serves American youth, their families and communities through the provision of thousands of community-based tennis programs across the country—especially young people in economically disadvantaged communities. During 2012 our research team conducted a secondary analysis of the highly respected, federally funded *Monitoring the Future* survey, which contains the responses of a nationwide samples of U.S. high school students, to compare the educational, social and health characteristics of tennis players with participants in other sports as well as non-athletes. The sample of 54,048 8th and 10th graders is representative of a large cross-section of U.S. high school students by geography, race and ethnicity between 2006 and 2010. A total of 4,278 tennis participants (8%) were included in the national sample.

This nationwide study (which will be released very soon) was conducted to provide USTA Serves with evidence-based research findings and analysis that informs the tennis community, government leaders, corporate and organizational decision makers about the impacts tennis participation has on U.S. adolescent youth. The findings validate USTA Serves' mission to support programs that enhance the lives of children and families through the integration of tennis, health and education. Here are some main findings that pertain to education. Compared to non-athletes and participants in the top nine high school sports, tennis players devoted more time each week doing homework, reported an average grade of "A" in courses, and said they will "definitely" attend and graduate from a 4-year university.

We also uncovered an interesting pattern in this study. Yes, tennis participation was related to a variety of educational gains. In addition, this relationship was found both across and within different family income levels. Stated another way, the positive synergies between tennis participation and academic performance were evident across social class differences.

For example, scrutiny of Table 34 reveals that tennis participants registered the highest percentage of students to report an “average grade of A” within each of the three family income categories. Tennis players from high SES families generated the largest percentage (59%) of students to report an average grade of A, as well as showing the greatest difference with non-participants (22%). However, note that the difference between tennis participants and non-athletes narrowed but remained in place across the Middle-SES and Low-SES families (16% and 13% respectively). These results (and several others reported in the study) suggest that while the links between tennis participation and academic achievement are the most salient in higher income families, there is a similar (though not as powerful) relationship in middle-SES and lower-SES families.

Let me move to another study. Phil Veliz and I conducted a nationally scaled study that confirmed links between educational gains with sports participation as early as middle-school (Sabo & Veliz, *Go Out & Play*, 2008). This may have been the first study to look at youth involvement with sports among 3rd-5th graders, 6th-8th graders, and 9th-12th graders. Very little is known about how sports involvement is linked to educational outcomes among youth before high school. Table V-42 breaks out some of our findings. Among girls, significantly more athletes than non-athletes reported “mostly A’s” within each of the grade subgroups. For the boys, however, it was only among 9th-12th graders that the athletes reported significantly higher grades than the non-athletes. The findings suggest that sports involvement may be linked to potentially different developmental and educational impacts or trajectories among girls and boys between elementary school and through high school. Where is the additional research in this realm? Sadly, it has not been done!

Phil Veliz is now a University of Michigan research fellow, and he continues to merge multiple, large, national data bases in order to test for statistically significant academic outcomes among athletes and non-athletes. In his most current work, it is schools (rather than individual students) that are the unit of analysis. One set of findings shows, for example, that schools with greater levels of athletic participation—for both girls and boys, and across race and ethnic groups—reported lower rates of student suspensions, less violence and assault, and better performance on Advanced Placement courses in mathematics, foreign language, and science (Veliz and Shakib, 2012). These findings strongly suggest that schools that generate more athletic opportunities for their boys and girls are also enabling academic achievement. Put another way, interscholastic sports are not just educational assets for many individual students. They are also educational assets for schools, and we believe, the districts and communities in which schools are located.

Sport & Teen Pregnancy

Education is about much more than what happens in classrooms. I want to discuss a final set of research findings that point to favorable, though less direct, educational gains for student athletes. In 2010 there were 367,752 infants born to 15-19 year-olds. While teen births among 15-17 year-olds have declined since 2009, the costs incurred to U.S. tax payers runs about \$11 billion per year (Centers for Disease Control). Teen mothers are more likely have lower educational achievement and to drop out of high school, grow up in poverty, and to face unemployment as adults. Even the children of teen moms show lower educational attainment, greater unemployment, and risk for incarceration.

In short, educators and public health policymakers know that teen pregnancy is a major social problem. During the 1990's, as I moved through women's youth circles, I heard arguments from coaches of girls, especially women coaches of color who worked with girls from economically depressed communities, that sports involvement helps lower teen pregnancy risk. I also read about program interventions in various cities or school districts that aimed to teach girls about the health and social risks associated with early sexual behavior, and the impacts of teen pregnancy on their lives. And at the time, there were vitriolic policy and cultural wars being fought over sex education in the schools, contraceptive use among teens, and policies that relied solely on abstinence. Some public health advocates argued for more educational interventions to help lower the U.S. teen pregnancy rate. Meanwhile, I began to wonder about the extent that high school sport in the U.S. might already be functioning as a teen pregnancy prevention program. Given the size of U.S. high school sports—an institution that literally engaged millions of boys, and thanks to Title IX, growing numbers of girls—I searched for nationally-scaled data that contained measures of both athletic participation and teen pregnancy rates. I was also aware of a unrealistic statistic that was generated at the University of Chicago, which stated something along the lines that girls who played sports were “89% less likely” to get pregnant than girls who did not play sports. Some thought leaders at the Women's Sports Foundation (WSF) and the incumbent Surgeon General of the United States (Jocelyn Elders) had gotten hold of this “bullet point” and they were relaying it in their advocacy speeches. My colleagues at the WSF wanted to assess the claim, and with some effort, I got hold of the actual article, sent it out for peer review among experts. We unanimously established its complete lack of statistical and scientific credibility. Both the WSF and Surgeon General pulled the statistic from their materials. We concluded that some reliable research in this area was needed! Former Alaska senator, Ted Stevens, agreed and he challenged me to act with, “Don't come to me with sound bites and platitudes. Go out and do some solid research that I can take to the hill.” I acted on his advice.

I soon discovered a Western New York research group conducting a longitudinal study called the Family and Adolescent Study. To my delight, they had gathered information about sports participation in their interviews as well as teen pregnancy rates. But it had not occurred to the researchers to look at these relationships and, after some persistent and tactful begging on my part, sociologist Mike Farrell generated some initial crosstab tables on a rainy Saturday. He was surprised and impressed by the initial results and subsequent multivariate analyses yielded even stronger statistical linkages between sports participation and reduced risk for teen pregnancy. Moreover, our intellectual understanding of these linkages unfolded within a framework that saw sports participation as a dynamic facet of interfaces between school, community, family life, young people's friendship groups, and ultimately, the decisions they made about dating, sexual behavior, and risking pregnancy.

With the regional study results in-hand, I learned that the Centers for Disease Control nationwide Youth Risk Behavior Survey also contained measures of athletic participation, sexual behavior, contraceptive use, and pregnancy risk. I went to the Women's Sports Foundation and we put together a montage of funders to support the first nationally representative study of sport and teen pregnancy, analyzing a nationally representative sample of 11,000 students grades 9 through 12. The research team led by Kathleen Miller deployed state-of-the-art multivariate statistical analyses, which examined the links between athletic participation and sexual outcomes while controlling for gender differences, socioeconomic status, and race and ethnicity. Compared with girls not involved with sports, the girls who played sports had lower pregnancy rates, had their first intercourse later in adolescence, engaged in sexual intercourse less frequently, reported fewer sex partners, and were more likely to use contraceptives. (See Sabo, D., Miller, K., Melnick, M., Farrell, M. & Barnes, G. (May 1998).

I want to update and replicate this study within the current historical and cultural environment. Since the original Women's Sports Foundation Sports & Teen Pregnancy study, an international research team tested what Norwegian scholar Kari Fasting calls the "Sport Protection Hypothesis". Kari, Celia Brackenridge (UK), and Kate Miller and me (USA) generated a basic descriptive analysis to test the sport protection hypothesis using the National College Health Risk Behavior Survey. The basic idea is that athletic participation helps protect girls and women from sexual victimization. Conducted in 1995 by the Centers for Disease Control & Prevention, the data base had information about the traditional U.S. undergraduate population (ages 18-24). The sample of N = 2,900 was not huge but large enough to warrant some basic statistical analyses. We found modest support that among females, student-athletes were significantly less likely to report sexual victimization than their nonathletic counterparts. This finding echoed some similar findings in Norway and the UK.

Conclusion and Policy Recommendations

Athletic participation in the U.S. is the most prevalent form of school-sponsored extracurricular activity among adolescents—among both boys and girls and across race and ethnicity. School and community sports leave a large footprint on the lives of millions of youth, and yet, few researchers and policymakers are tracking this developmental and educational path. Based on research, just what can we conclude about the links between youth sports participation and educational benefits? I can offer several evidence-based conclusions.

Youth sports are a real and potential educational resource. Sports involvement favorably influences many boys' and girls' academic development. The presence of sports programs within schools should be seen as an institutional resource—for students, families, and the community. Indeed, during the economic recovery that has been inching forward across the past several years, political leaders have called for a renewed commitment to education of American youth as a vehicle for stimulating greater academic achievement, national economic development, and global competitiveness. Educators and policymakers need to consider how high school sports can be further mobilized as a national institutional asset that can help achieve these outcomes.

Sports are more than fun and games for individuals. The bulk of the research evidence shows that sports programs function as institutional resources—at the family, school, community, and national levels. Social scientific theories that envision youth sports as a form of “social capital” have recently emerged and captured some attention from policymakers. Putnam (2000) argues that social capital is comprised of “features of social organization, such as trust, norms, and networks that can improve the efficiency of society by facilitating coordinated action” (p.167). Organized youth sports foster social cohesion among individuals but also across groups and organizations, which can help adolescents form relationships and psychosocial bonds with one another and supportive adults, thereby increasing social capital and inducing favorable adjustment in society. Sport programs can generate social capital by germinating social networks that cross disparate economic enclaves, fostering connectivity and shared values across social classes. Youth sports sometimes function in ways that crisscross school and community boundaries, fostering greater interaction among players and parents from suburban, town, and urban communities. We need to better understand how youth sports operate as social capital and, at the same time, figure out how to successfully configure the institutional investment across more communities.

Our current research on youth participation in tennis has taught us that youth sports may best be viewed as a catalyst for educational benefits (Sabo, Veliz & Rafalson, 2012). The word “catalyst” derives from “catalysis,” which is defined as “an action between two or more persons or forces, initiated by an agent that itself remains unaffected by the action.”¹ Youth

sports are a kind of positive social catalysis. Sport involvement is neither a cause nor an effect in relation to educational advancement, but rather, youth sport unfolds at an intersection among family, school, community, youth peer groups, coaches and teachers, and cultural beliefs that—when activated and sewn into a young person’s identity and development—can foster favorable educational outcomes. In contrast, an example of a negative social catalyst in youth development might be the adoption of illicit drug use. For many young people, the regular use of illicit drugs would be accompanied by changes in peer group, personal identity, daily routine, physiological development, neuropsychological process, studying behavior, and/or academic performance. Illicit drug use is not “the” cause of peer group affiliation per se, but rather, a key element in a young person’s life that can be accompanied by shifts in psychosocial identity, behavior, friendship patterns, and orientation toward school and education.

It is time to rethink youth sports. Youth sport programs do not function as an institutional monolith. They are not a gigantic “magic pill” that automatically yields favorable educational outcomes across the nation. The research suggests that many—but not all—sports programs and types of sport do an effective job at recruiting and retaining young adolescents, and helping them to develop friendships, to excel on the academic front, and to move ahead in education. Researchers need to rethink the study of youth sports and one way to do so is to use schools as the unit of analysis, comparing educational outcomes across schools and districts within quasi-experimental designs that test for links between For example, do school districts with greater gender equity in athletic participation have significantly better academic performance and graduation rates than schools with less gender equity? Do schools with a wider array of sports fair better academically than schools with heavy participation in traditional sports?

I conclude with some policy recommendations that are warranted by the existing research on youth sports participation and educational benefits.

1. Social scientists and educators need to do more relevant quantitative research. I do not mean just “any” academic research, but rather, evidence-based research that describes and analyzes how youth sports programs operate in ways that promote or block favorable educational objectives.
2. Sport and education researchers need to join what Harvard researcher Nicholas A. Christakis (2012) hails as an emerging revolution in social scientific research. He argues that we are entering an historic era in which computational social scientists will design large experiments that take advantage of huge data bases (“big data”) in order to test key hypotheses. Economist Betsey Stevenson has mined large government data bases in order to assess national trends in relation to girls increased involvement in sports

triggered by Title IX. Phil Veliz (2012) is merging government data bases that test for different academic outcomes linked to high school sports; i.e., the Department of Education Common Core of Data, merged with the Office of Civil Rights Data Collection. We have also recently analyzed merged data bases in order to assess long-range trends in gender equity among U.S. high school sports (Sabo & Veliz, 2012). In short, researchers need to give policymakers the evidence and analysis that they need in order to understand and change the world.

3. The government needs to continue to collect data on education and sport. More researchers from across an expanding spectrum of disciplines are discovering and tapping government data bases to generate knowledge about institutional processes related to youth sport such as educational outcomes, graduation rates, delinquency, health risks, college attendance, and involvement in civil society.
4. Many corporations, private foundations, and private donors look for effective ways to inform wider publics, influence policy debates, and/or facilitate social change. The sponsorship of regional or nationally-scaled research initiatives can often optimize these investments.
5. Build bridges between sport and education policy and evidence-based research.

In conclusion, the characterization of high school sports as a distraction from or detriment to academic achievement is erroneous. Moreover, the assertion that school sports are an educational dead end for racial and ethnic minorities is simply not supported by the evidence. We have entered a new era of “big data” analyses and substantive quantitative research that increasingly show that sports are a real or potential educational resource for American youth.

Selected References and Related Sources

Below find a list of references and related sources to accompany my presentation for the LA84 Foundation National Education Summit. For further information or additional sources, contact Don Sabo, Ph.D., at sabod@dyc.edu or gradres@yahoo.com

Baumert, P. W. and Thompson N.J. (1998). Health Risk Behaviors of Adolescent Participants in Organized Sports. *Journal of Adolescent Health*, Vol. 22, pp. 460-465.

Brownson, R.C., Royer, C., Ewing, R., & McBride (2006). Researchers and Policymakers: Travelers in Parallel Universes. *American Journal of Preventive Medicine*, 30(2): 164-172.

Christakis, N. A. (2012). A new kind of science for the 21st century. See this link for blog and videoclip: <http://edge.org/conversation/a-21st-century-change-to-social-science>

Coleman, J.S. (1960). The Adolescent Subculture and Academic Achievement. *The American Journal of Sociology*, Vol. 65, pp. 337-347.

Coleman, J.S. (1961a). *The Adolescent society: The social life of the adolescent and its impact on education*. New York: Free Press.

Coleman, J.S. (1961b). Athletics in High School. *Annals of the American Academy of Political and Social Science*, Vol. 338, pp. 33-43.

Eccles, J. S., and Barber, B. L. (1999). Student Council, Volunteering, Basketball, or marching Band: What kind of extracurricular involvement matters? *Journal of Adolescent Research*, Vol. 14, pp. 10-43.

Edwards, H. (1970). *The Revolt of the Black Athlete*. New York: the Free Press.

Fasting, K., Brackenridge, C. H., Miller, K. E. and Sabo, D. (2008). Participation in college sports and protection from victimization. *International Journal of Sport and Exercise Psychology*, 6: 427-441.

Fejgin, N. (1994). Participation in High School Competitive Sports: A subversion of school mission or contribution to academic goals? *Sociology of Sport Journal*, Vol. 11, pp. 211-230.

Feldman, A., and Matjasko, J. (2005). The Role of School-Based Extracurricular Activities in Adolescent Development: A comprehensive review and future directions. *Review of Educational Research*, Vol. 75, pp. 159-210.

Fox, C.K., Barr-Anderson, D., Neumark-Sztainer, D., and Wall, D. (2010). Physical Activity and Sports Team Participation: Association with academic outcomes in middle school and high school students. *Journal of School Health*, Vol. 80, pp. 31-37.

Hartmann, D. and Massoglia M. (2007). Reassessing the Relationship Between High School Sports Participation and Deviance: Evidence of Enduring, Bifurcated Effects. *The Sociological Quarterly*, Vol. 48, pp. 485-505.

Hastad, D. N., Segrave J.O., Pangrazi R., and Petersen G. (1984). Youth Sport Participation and Deviant Behavior. *Sociology of Sport Journal*. Vol. 1, pp. 366-373.

Holland, A., and Andre, T. (1987). Participation in Extracurricular Activities in Secondary School: What is known, what needs to be known? *Review of Educational Research*, Vol. 57, pp. 437-466.

Pearson, J., Crissey, S.R., and Riegle-Crumb, C. (2009). Gendered Fields: Sports and advanced course taking in high school. *Sex Roles*, Vol. 61, pp. 519-535.

Landers, D. M. and Landers, D. M. (1978). Socialization via Interscholastic Athletics: Its Effects on Delinquency. *Sociology of Education*, Vol. 51, pp. 299-303.

Lipscomb, S. (2007). Secondary School Extracurricular involvement and academic achievement: a fixed effects approach. *Economic of Education Review*, Vol. 26, pp. 463-472.

Marsh, H. (1992). Extracurricular Activities: Beneficial extension of the traditional curriculum or subversion of academic goals? *Journal of Educational Psychology*, Vol. 84, pp. 553-562.

Marsh, H., and Kleitman, S. (2002). Extracurricular School Activities: The good, the bad, and the nonlinear. *Harvard Educational Review*, Vol. 72, pp. 464-502.

McNeal, R.B., Jr. (1995). Extracurricular Activities and High School Dropouts. *Sociology of Education*, Vol. 68, pp. 62-81.

Melnick, M., Miller, K., Sabo, D., Barnes, G. & Farrell, M. (2010). Athletic participation and seatbelt omission among U.S. high school students: A national study. *Health Education & Behavior*, 37: 23-36.

Miller, K., Melnick, M., Barnes, G., Farrell, M. & Sabo, D. (2005). Untangling the links among athletic involvement, gender, race, and adolescent academic outcomes." *Sociology of Sport Journal* 22:178-193.

The President's Council on Physical Fitness and Sports (1997). *Physical Activity & Sport in the Lives of Girls: Physical & Mental Health Dimensions from an Interdisciplinary Approach*. The Center for Research on Girls & Women in Sport.

Otto, L.B., and Alwin, D.F. (1977). Athletics, Aspirations, and Attainments. *Sociology of Education*, Vol. 50, pp. 102-113.

Putnam, R.D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.

Rehberg, R. and Schafer, W.E. (1968). Participation in Interscholastic Athletics and College Expectations. *American Journal of Sociology*, Vol. 63, pp. 732-740.

Sabo, D., Veliz, P. & Rafalson, L. (2012). A USTA Special Report--More Than Sport: Tennis, Education and Health. A nationwide study of U.S. adolescent tennis participation, forthcoming from the USTA Serves

Sabo, D. & Veliz, P. (2012). The Decade of Decline: Gender Equity in High School Sports. The full report may be downloaded at www.womenssportsfoundation.org and also at www.SHARPcenter.org

Sabo, D. (2009). The gender gap in youth sports: Too many urban girls are being left behind. *J. of Physical Education, Recreation and Dance*. (October).

Sabo, D. (2009). Advisory Board member, consultant. The White House Project Report: Benchmarking Women's Leadership (November, 2009). For section on women in sport, see <http://www.benchmarks.thewhitehouseproject.org>

Sabo, D. & Veliz, P. (2008). Go Out & Play: Youth Sports in America. A Women's Sports Foundation report, www.womenssportsfoundation.org/GoOutandPlay

Sabo, D. & Ward, J. V. (2006). Wherefore Art Thou Feminisms? Feminist Activism, Academic Feminisms, and Women's Sports Advocacy. *Scholar & Feminist Online*, 4(3) summer; Access article at <http://sfonline.barnard.edu/sport/>

Sabo, D., Miller, K., Melnick, M., Farrell, M. & Barnes, G. (May 1998). The Women's Sports Foundation Report: Sport and Teen Pregnancy. East Meadow: Women's Sports foundation. Access report at www.womenssportsfoundation.org

Sabo, D., Melnick, M. & Vanfossen, B. (1992). Educational effects of interscholastic athletic participation on African-American and Hispanic youth. *Journal of Adolescence* 27(106):295-308.

Sabo, D.F., Vanfossen, B.E., and Melnick, M.J. (1993). High School Athletic Participation and Post-Secondary Educational and Occupational Mobility: A focus on race and gender. *Sociology of Sport Journal*, Vol. 10, pp. 44-56.

Sabo, D., Melnick, M. & Vanfossen, B. (1992). Effects of interscholastic athletic participation on the social, educational, and career mobility of Hispanic boys and girls. *International Review of Sport Sociology* 27(1):57-75.

Sabo, D., Melnick, M. & Vanfossen, B. (1989). The Women's Sports Foundation Report: Minorities in Sport. New York: The Women's Sports Foundation.

Schafer, W. E. (1969). Participation in Interscholastic Athletics and Delinquency: A Preliminary Study. *Social Problems*, Vol. 17, pp. 40-47.

Spreitzer, E. (1994). Does participation in interscholastic athletics affect adult development? : A longitudinal analysis of an 18-24 age cohort. *Youth & Society*, Vol. 25, pp. 368-387.

Staurowsky, E. et al., *Her Life Depends On It: Sport, Physical Activity, and the Health and Well-Being of American Girls and Women*. East Meadow, NY: Women's Sports Foundation.

The White House Project Report: Benchmarking Women's Leadership (November 2009). Advisory Panel member, consultant. See <http://www.benchmarks.thewhitehouseproject.org>

Tucker Center for Research on Girls & Women in Sport (2007). The 2007 Tucker Center Research Report, Developing physically active girls: An evidence-based multidisciplinary approach. <http://www.tuckercenter.org/projects/tcrrdefault.html>

Veliz, P. & Shakib, S. (2012) Gender, academics and interscholastic sports participation at the school level: Does increased female sports participation in schools foster female participation in traditionally male academic domain? *Sociological Focus*, under review.

ⁱ The Random House Dictionary of the English Language (1967). New York: Random House, p. 231.