



# THE WOMEN'S SPORTS FOUNDATION® REPORT:

## SPORT AND TEEN PREGNANCY





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# THE WOMEN'S SPORTS FOUNDATION®

## REPORT: SPORT AND TEEN PREGNANCY

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### About the Women's Sports Foundation

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The Women's Sports Foundation® is a national nonprofit, member-based organization dedicated to increasing opportunities for girls and women in sports and fitness through education, advocacy, recognition and grants. Established in 1974 by Billie Jean King, its founder; Donna de Varona, a founding member and its first president; and many other champion female athletes, the Foundation seeks to create an educated public that encourages females' participation and supports gender equality in sport. The Foundation serves as a center for collecting and sharing information on girls and women in sports. The Women's Sports Foundation also produces quality academic research on the psychological, social and physiological dimensions of sport and fitness in the lives of girls and women.

### Authorship and Acknowledgments

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This report was co-authored by the project director, Don Sabo, Ph.D., D'Youville College; and Kathleen Miller, Ph.D., and Michael Farrell, Ph.D., University at Buffalo, S.U.N.Y.; Grace Barnes, Ph.D., New York State Research Institute on Addictions; and Merrill Melnick, Ph.D., S.U.N.Y. College at Brockport. The research was funded by The Packard Foundation, The RGK Foundation, the Sara Lee Foundation, The Turner Foundation, and NIAAA grants AA06925 and AA09425. Deep appreciation is extended to Donna Lopiano, Ph.D., Marjorie Snyder, Ph.D., and Deana Monahan for bringing this project to fruition. We are also indebted to special consultants Sandra Hanson, Ph.D., Rebecca Kraus, Ph.D., and Beth Vanfossen, Ph.D.

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# Executive Summary

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This study fills a major gap in research, revealing that sports may well be an untapped resource in the nation's struggle to prevent teen pregnancy. Many Americans believe that sports help to lower girls' risk for pregnancy. Parents breathe easier because their daughters are busy and chaperoned while attending after-school sports programs. Coaches tell stories about girls for whom the self-esteem supplied by sports helped ward off peer pressures to have sex. Some corporate advertisers point to sport as a key solution to the problem of teen pregnancy.

Despite such claims, however, researchers have failed to systematically investigate the connections between athletic participation and girls' risk for pregnancy<sup>1</sup>. Moreover, only a handful of educational or community-based programs have used athletic participation as a strategic centerpiece for reducing teen pregnancy.

*The Women's Sports Foundation Report: Sport and Teen Pregnancy* opens a door for understanding the largely unexamined connections between athletic participation, sexual behavior and teen pregnancy. So that reliable research findings could be generated, the Women's Sports Foundation pooled funds with the Packard Foundation, the RGK Foundation, the Sara Lee Foundation, and the Turner Foundation in order to develop a comprehensive research design that tested whether athletic participation is tied to a reduced risk of teen pregnancy.

And what about boys? Are male athletes more or less likely than non-athletes to be involved with a pregnancy? Do boys learn lessons in the locker room that encourage them to "score" with girls and measure their masculine self-worth in terms of sexual conquest? Or are male athletes too caught up with training, discipline, and dreams of athletic success, too committed to a "clean body, clean mind" ethic to risk unprotected sex and consequent involvement with pregnancy? These questions remain unanswered, both because research on teen pregnancy and prevention programs has focused mainly on girls and because the role of sports in male sexual development has only recently begun to be studied. While the emphasis of this study is mainly on girls, we do include some findings that pertain to boys.



The findings and conclusions in this report were derived from the analyses of two different sources of data: (1) the Youth Risk Behavior Survey of the Centers for Disease Control and Prevention, a nationally representative sample of 11,000 students in grades 9 through 12; and (2) the Family and Adolescent Study, a New York State Research Institute on Addiction study funded by the National Institute on Alcohol Abuse and Alcoholism, which includes a representative household sample of adolescents from 699 families from Western New York. Our data analyses provided a comprehensive and reliable assessment of the influence of athletic participation on adolescent sexual behavior and pregnancy risk. Some racial and ethnic groups were not represented in large enough numbers for reliable statistical analyses to be done; e.g., Asians, Native Americans, Pacific Islanders.

Some specific findings documented by this study include:

## **1. Female Athletes Were Less Likely to Get Pregnant**

Female athletes in the nationwide survey were less than half as likely to get pregnant as female non-athletes (5% and 11%, respectively). Moreover, significantly reduced rates of pregnancy were found for the subsamples of African-American, Caucasian, and Latina/Hispanic female athletes.

## 2. Female Athletes Were More Likely to Be Virgins

Female athletes were significantly more likely to report that they had never had sexual intercourse than female non-athletes. While 54% of the female athletes said they had never had sexual intercourse, 41% of the non-athletes reported the same.

## 3. Female Athletes Had Their First Intercourse Later in Adolescence

Female non-athletes were about twice as likely as female athletes to experience their first intercourse between the ages of 10 to 13 (15% and 8%, respectively in the nationwide survey, and 9% and 2% in the Western New York survey). The onset of coital activity was significantly later for female athletes than female non-athletes.

## 4. Female Athletes Had Sex Less Often

Female athletes in Western New York had sexual intercourse less frequently than female non-athletes. While less than a third of female athletes (30%) acknowledged having sexual intercourse four or more times during the past year, almost half of non-athletes (49%) did so.

## 5. Female Athletes Had Fewer Sex Partners

Female athletes had fewer sex partners than their non-athletic counterparts. While 29% of athletes in the nationwide survey said they had two or more partners during their lifetime, 37% of the non-athletes said so. The figures for the Western New York study were 24% and 39%, respectively.

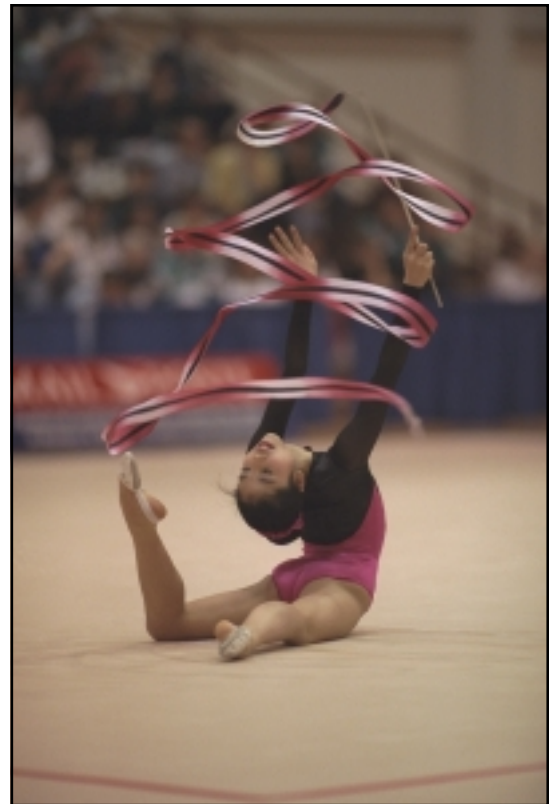
## 6. Mixed Results for Male Athletes

Male athletes in Western New York experienced their first sexual intercourse earlier than male non-athletes. In the national study, African-American male athletes also experienced coital onset earlier than the non-athletes. However, no other consistent pattern of differences emerged between male athletes and non-athletes.

## 7. Athletes Are More Likely to Use Contraceptives

Among sexually active adolescents in the nationwide survey, both female athletes (87%) and male athletes (85%) reported higher rates of contraceptive use than their non-athletic counterparts. Specifically in regard to condom use, however, only female athletes were significantly more likely to report use than female non-athletes (53% and 41%, respectively).

Our results strongly suggest that, for girls, sports may be used as a developmental strategy in programs intended to reduce teen pregnancy. In order to tap this potential, a Policy Advisory Panel was formed to draw up the policy recommendations included in this report.



# Introduction

Teen pregnancy in the United States is a serious social problem. In the current social and economic context, young mothers and their infants, particularly those without prenatal care and health services, often face many medical problems. Early childbearing for girls is a common cause of school drop-out as well as a predictor for poverty, and teenage mothers face lower levels of educational achievement and career success. Unintended teen pregnancies also create extra economic burdens for parents and communities. In a nation where more than 4 out of 10 women become pregnant before reaching the age of 20, governments spend billions of dollars per year to meet the social costs that are associated with teen pregnancy and early childbearing.

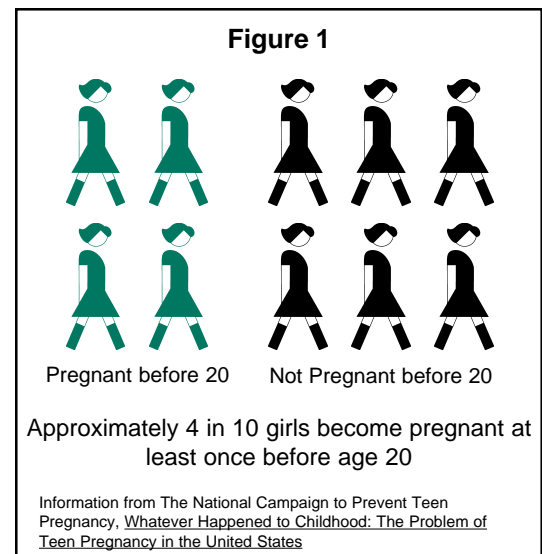
Though Americans agree that teen pregnancy is a national concern, they differ greatly on how to solve the problem<sup>2</sup>. The dialogue around teen pregnancy prevention during the last 30 years has emphasized a variety of solutions including abstinence, sex education, and contraceptive use. Most recently, experts have called for developmental programs that, over time, integrate the influences of family, school, and community in ways that help young people form the personal and social skills with which to make positive and healthful decisions<sup>3</sup>. Few intervention strategies, however, have attempted to make use of the developmental importance of sports in teen subcultures in order to lower the rates of risky sexual behavior and pregnancy<sup>4</sup>.

The results of this study suggest that athletic participation functions as a developmental resource for many adolescent females in ways that positively influence sexual behaviors while reducing girls' risk for pregnancy. Sports capture and hold millions of young people's imaginations and energies throughout their adolescence. Athletic activities are a social and cultural intersection where coaches, parents, community members, and teenagers gather in the pursuit of common goals.

The central goal of this study was to test the popular claim that athletic participation reduces the likelihood of pregnancy among adolescents. This is no easy task since few reliable surveys of adolescents include questions about sexual behavior and pregnancy. By combining the results of two surveys that used representative samples of adolescents, we were able to produce the most thorough analysis of these topics to date. Whenever possible we used the same items from both surveys; e.g., both the nationwide and Western New York surveys contained questions about age at first intercourse.

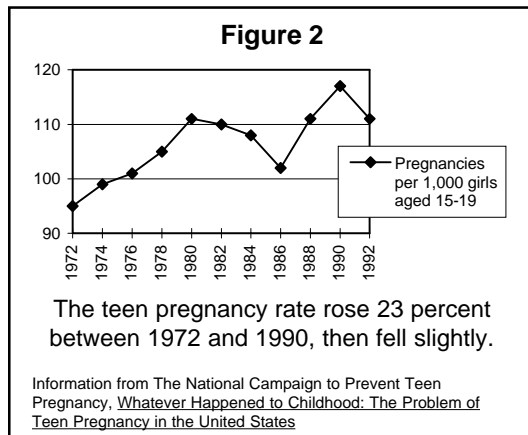
A detailed summary of our method and data analytic procedures appears in Appendix A. Only those findings that attained statistical significance ( $p < .05$ ) are included in this report.

The findings and interpretations presented here should be regarded as a first step toward explaining the relationships among adolescent involvement with sports, sexual behavior, and pregnancy. The sports experience is only one aspect of the wide array of feelings, values, social forces, and biological drives that influence the sexualities of girls and boys. Sexuality also includes the ways that young people define themselves and others, and the personal and cultural meanings that are used to inform behaviors and relationships.



# Findings

## Pregnancy Risk



The overall pregnancy rate among American 15- to 19-year-old girls increased 23 percent between 1972 and 1990. Though the rate of teen pregnancy has declined somewhat since 1990, millions of adolescents remain at risk<sup>5</sup>.

Is athletic participation associated with lower adolescent risk for pregnancy? Figure 3 shows that among the nationwide sample of females who participated in the Youth Risk Behavior Survey, non-athletes were more than twice as likely as athletes to report a pregnancy (11% and 5%, respectively). A lower rate of pregnancy for female athletes remained statistically significant for African-American, Caucasian, and Latina/Hispanic subgroups.

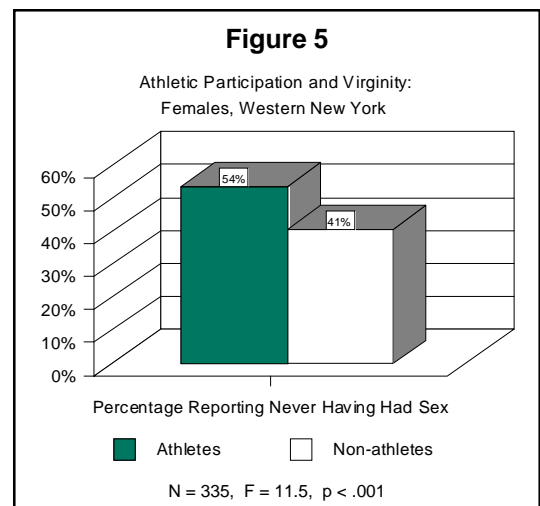
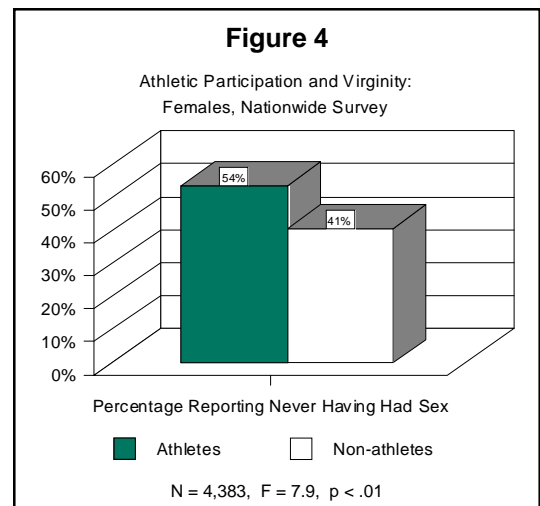
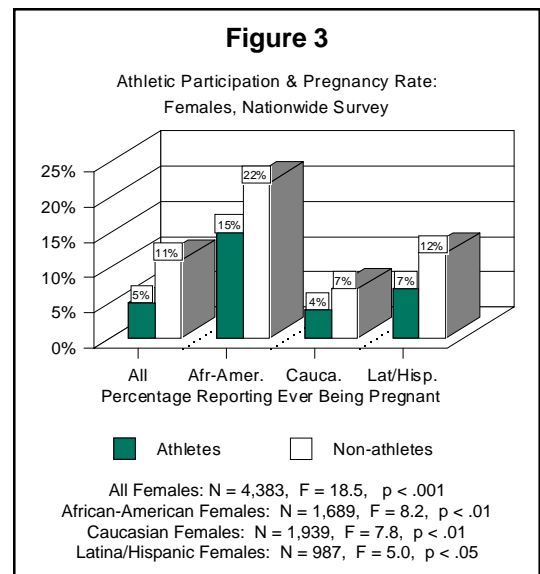
A similar trend emerged among females in the Western New York survey, where non-athletes were twice as likely as athletes to report a pregnancy (14% and 7%, respectively). Unlike the findings from the nationwide survey, however, these differences were not statistically significant. The failure to reach statistical significance may be owed in part to the limited number of pregnant girls in the Western New York sample.

**About the Boys.** Male athletes were no more likely than non-athletes to report being involved with a pregnancy. In addition, no differences were observed among African-American, Caucasian, or Latino/Hispanic males.

## Virginity

Female athletes were significantly more likely than non-athletes to report that they had never had sex in both the national and Western New York surveys. Figures 4 and 5 are basically a mirror image of one another, showing that 54% of the female athletes indicated that they never had sex, compared to 41% of the non-athletes. The remarkable consistency between the two sets of findings gives some confidence to their reliability.

**About the Boys.** Male athletes overall were just as likely to report never having had sex as their non-athletic counterparts. For example, 47% of the athletes and 45% of the non-athletes in the national survey had never had sex. Athletic participation, therefore, was unrelated to the virginity status of boys.



# Age at First Intercourse

Slightly more than half (52%) of American girls 15-19 years old had experienced sexual intercourse in 1995, while 56% of boys had done so<sup>6</sup>. Early onset of sexual activity is associated with higher risk for pregnancy in later adolescence, greater numbers of sexual partners, and lower rates of contraceptive use<sup>7</sup>. Because of these adverse consequences, it was important to determine whether athletic participation was associated with the age of sexual onset among girls and boys<sup>8</sup>.

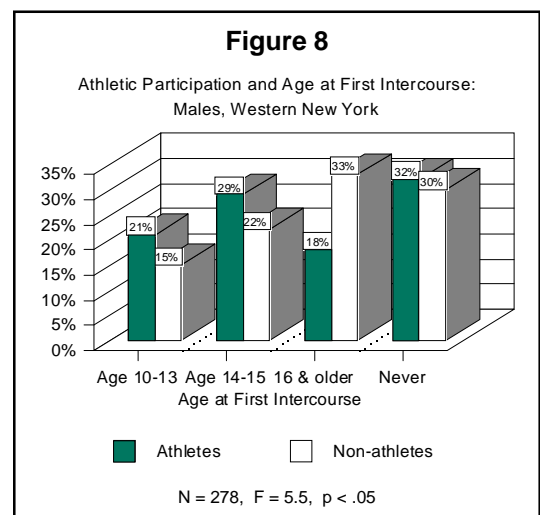
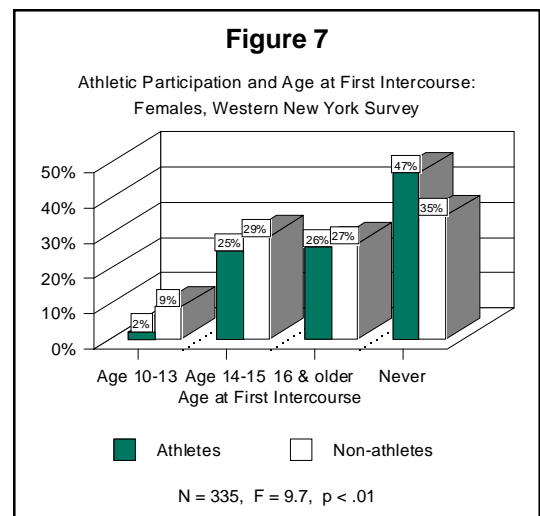
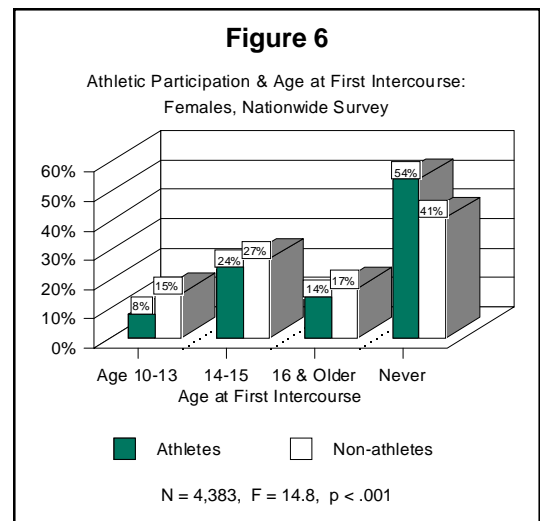
The findings from the national survey show that female athletes reported having their first intercourse later in adolescence than female non-athletes. While 8% of female athletes experienced their first intercourse before age 14, 15% of the female non-athletes did so. (See Figure 6.) These results were replicated by the Western New York survey where 2% of the female athletes had their first intercourse between age 10 and 13, compared to 9% of the female non-athletes. (See Figure 7.)

**About the Boys.** In contrast to the above findings for females, male adolescents in the Western New York study were more likely to experience their first sexual intercourse earlier in adolescence than their non-athletic counterparts. Figure 8 shows that 21% of athletes and 15% of non-athletes reported having their first intercourse between ages 10 and 13. The figures for those reporting their first intercourse at age 14 or 15 were 29% and 22%, respectively. In the nationwide survey, the link between athletic participation and earlier onset of sexual activity was significant only for African-American males. While 59% of African-American male athletes reported their first intercourse between ages 10 and 13, 51% of the non-athletes did so.

In summary, the findings suggest that athletic participation is related to later onset of sexual activity among girls, and earlier onset of sexual activity among boys. More research is needed to explore these relationships and determine the reasons behind them.

# Sexual Behavior

Most young athletes devote a lot of emotional and physical effort to sports. Many are also involved with other extracurricular activities in school and the community<sup>9</sup>. Young athletes grow up hearing lectures from adults about leading exemplary lives both on and off the court or playing field. Being an athlete, they are often told, means conditioning their bodies and staying healthy enough to compete. Coaches, teachers, or health care professionals often counsel young athletes to avoid risky behaviors such as substance abuse and sexual activity in order to develop their athletic skills and, in the long run, upgrade their chances for an athletic scholarship in college. For boys, however, the lessons to avoid the dangers of sexual activity and involvement with pregnancy can be contradicted by locker room messages that having sex with girls is proof of one's manhood.

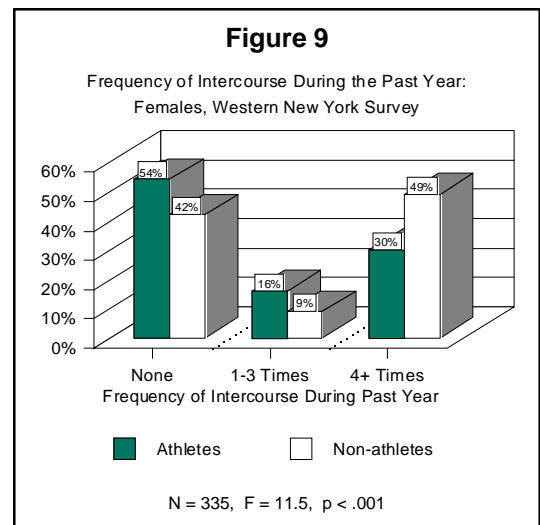




In order to assess whether being an athlete influences the sexual behavior of adolescents, we examined variations in the frequency of intercourse and number of sex partners among our respondents.

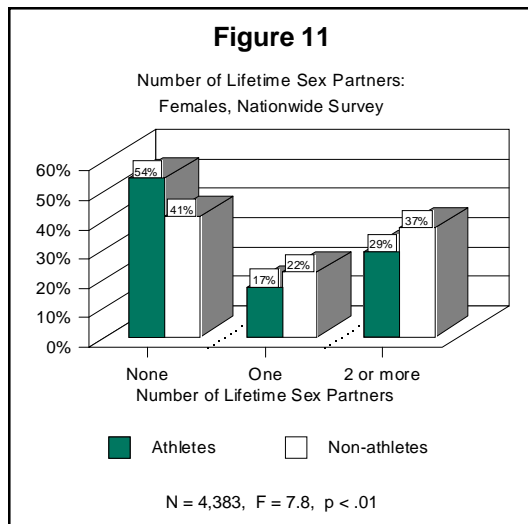
## Frequency of Intercourse

Respondents in the Western New York survey were asked to indicate how many times they had sexual intercourse during the past year. Figure 9 shows that female athletes were more likely than non-athletes to report having no sex (54% versus 42%) and to have had sex one to three times (16% versus 9%). Female athletes were also less likely to report having had sex four or more times during the past year (30% of athletes versus 49% of non-athletes). (Regrettably, there were no measures for frequency of intercourse in the national Youth Risk Behavior Survey.)



## Number of Partners

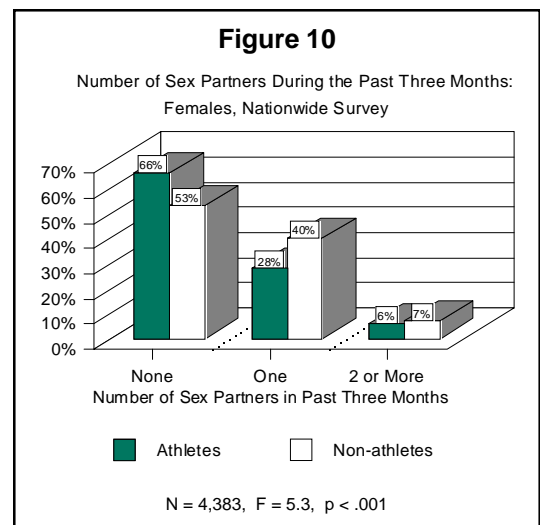
Respondents in the nationwide survey reported how many sex partners they had during the past three months.



sex partners they had during the past three months.

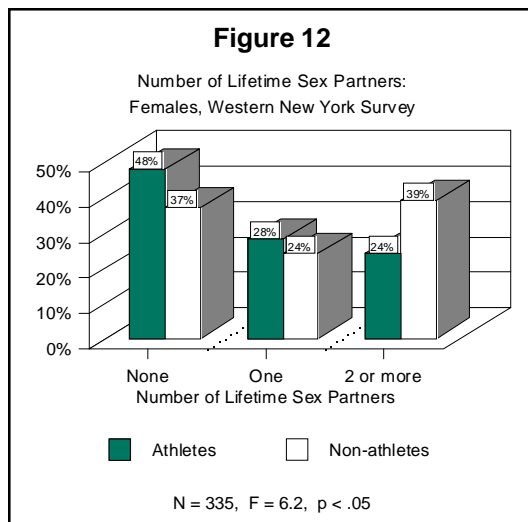
Figure 10 shows that while two-thirds of female athletes indicated they had no sex partners in the time period, about half of the non-athletes (53%) did so.

Moreover, 28% of the athletes reported they had one partner compared with 40% of the non-athletes.



Both the nationwide and Western New York surveys contained measures of the number of sex partners that the respondents had had in their lifetime. Figure 11 reveals that 54% of female athletes reported “none” compared with 41% of the female non-athletes. The most marked discrepancy between female athletes and non-athletes was for those who reported having “two or more” lifetime sex partners (29% and 37%, respectively).

Female athletes in the Western New York sample also reported fewer lifetime sex partners than their non-athletic counterparts. See Figure 12. Similar to the nationwide survey results, female athletes in Western New York were less likely than female non-athletes to report having multiple lifetime partners (24% versus 39%, respectively).

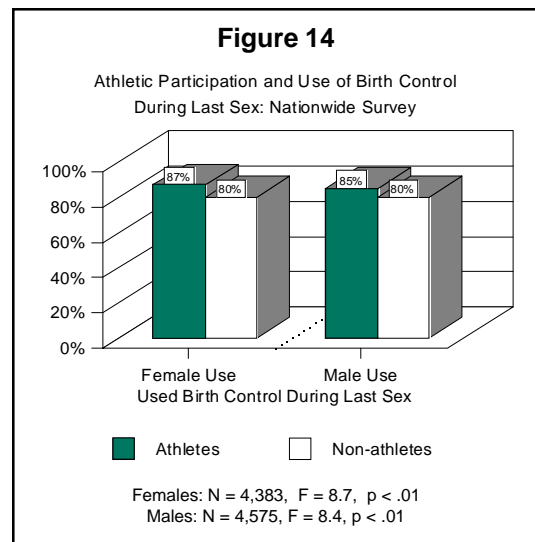
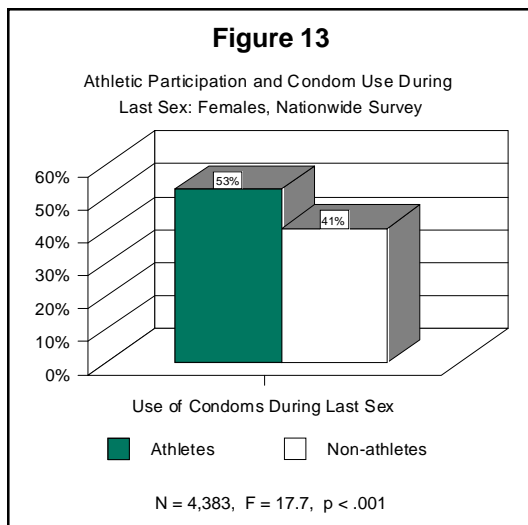


**About the Boys.** Findings for boys were mixed. No pattern of significant differences between the male athletes and non-athletes was found with regard to frequency of intercourse and number of sex partners.

# Contraceptive Use

We reasoned that among sexually active adolescents, athletes would be especially motivated to avoid pregnancy. Pregnancy or involvement with a pregnancy jeopardizes an athlete's individual performance as well as her or his team's success. The fear of pregnancy may be more pressing for high school athletes because, when compared to their non-athletic counterparts, both female and male athletes are generally more likely to plan to attend college after graduation<sup>10</sup>. We also felt that, to the extent athletic participation helps young people forge a positive body concept and greater self-esteem, athletes would be more assertive and better equipped to negotiate the complicated decisions that surround contraceptive use.

Most sexually active adolescents did take precautions. Figure 13 shows that female athletes were more likely than female non-athletes to report condom use during their last sexual encounter (53% versus 41%). Figure 14 reveals that both female and male athletes in the nationwide survey reported higher rates of contraceptive use than their non-athletic counterparts. Eighty-seven percent of female athletes reported having used some method to prevent pregnancy during their most recent sexual encounter compared to 80% of female non-athletes. The difference between male athletes (85%) and male non-athletes (80%), while slightly smaller than for girls, was significant as well.



# Conclusion

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*The Women's Sports Foundation Report: Sport and Teen Pregnancy* has uncovered a pattern of evidence that participation in sports helps many girls to make decisions about sexual activity that can prevent teen pregnancy. Our findings show that girls who play sports do in fact report lower pregnancy rates, engage in sexual intercourse less frequently, have fewer partners, and begin sexual activity later than those not involved with sports.

Athletic participation is part of the complex interplay of social, cultural, and biological processes that influence the sexualities of girls and boys. The overall consistency between the results from the national and Western New York surveys lends credence to our conclusions. We contend that sports are a cultural resource that builds girls' confidence, sense of physical empowerment, and social recognition within the school and community. Girls may be using the self-reliance and social status gained through athletic participation to resist social pressures to exchange sex for approval or popularity.

Sports might also help girls cut loose from the conventional scripts for femininity that encourage them to establish self-worth mainly in terms of sexuality and heterosexual appeal. In addition, female athletes grow up in the close-knit social networks of their teams where they have a niche to construct an identity that is a step removed from the adolescent dating scene. Team membership can provide girls with their own space, physically and emotionally, in a highly sexualized culture that gives them conflicting messages about who they are or should be. In the girls' locker room, they can also discuss their concerns about relationships and the motives of boys<sup>11</sup>. Finally, for those girls who do become sexually active, the physical and personal empowerment derived from the athletic experience might also explain their greater willingness to use contraceptives.

This study also suggests that athletic participation influences the sexual identities and behaviors of girls in different ways than boys. For girls and women, athletic participation is an historical departure from traditional femininity. Being a female athlete has meant challenging male privilege and cultural myths about female frailty. For many young female athletes in the 1990s, being an athlete has meant that they were stronger, faster, or gutsier than their mothers and grandmothers. Finally, the changing definitions of femininity and women's roles in the wider culture during the last few decades have meant that, increasingly, girls who have pursued the athlete role have received solid encouragement from parents, coaches, teachers, and health professionals.

In contrast to girls, boys' experiences in sport have been an extension of gender expectations surrounding manhood and sexuality. Sport has been a training ground for traditional masculinity in American society, and athletic participation has generally amplified traditional gender expectations for males rather than challenge them. Indeed, male athletes are often rewarded and celebrated for acting out stereotypical scripts for masculinity—not only in sport settings but in dating and sexual relationships as well<sup>12</sup>. We found that male athletes became sexually active earlier in adolescence than non-athletes. It may be that the pressures to “score” that boys experience in the traditional locker room nudge them toward early sexual intercourse. Boys who enter sports might also be more physically mature than their non-athletic counterparts, thus making them more physiologically inclined toward sexual activity. For most of the male adolescents in this study, however, the sexual behavior and the likelihood of being involved with a pregnancy between athletes and non-athletes did not differ significantly.

The struggle for gender equity in school and community sports programs has been underway for more than two decades. The battle is being waged by parents, Title IX advocates and PTA members who believe girls deserve a fair share of the athletic resources. The findings of this study suggest that there is more at stake in these conflicts than equalizing the number of Fall or Winter sport teams for girls and boys, or who gets new uniforms and topnotch practice facilities. Athletic participation may play a role in many girls' development that, for reasons we are just beginning to uncover and understand, can moderate sexual activity and lower risk for pregnancy.

Athletic participation offers no quick fix to the problem of teen pregnancy in the United States. Sport is best seen as part of the solution to the problem of teen pregnancy and not the solution. Indeed, there is no single solution to the problem of teen pregnancy. Sports provide a setting for girls and boys to hang out in, to grow physically and emotionally, to forge values and identities, and to test their limits and abilities. Sports also provide a social gateway for adults to regularly interact with young people in supportive ways. It remains to be seen whether educational and prevention programs in the future will effectively tap the powerful appeal of sport for young people in ways that foster responsible sexual behavior and lower risk for teen pregnancy.

# Policy Recommendations

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Effective policy formulation makes use of ideas, insights and relevant information in order to produce progress in the real world. The sport-specific policy recommendations listed below are intended to help achieve educational and public health goals related to teen sexual behavior and pregnancy risk. A panel of nationally recognized leaders from education, government, and sport was created to review an earlier draft of this report and to recommend guidelines for future planning and action. We gratefully acknowledge their input and expertise. The list of panel members and affiliations appears below.

The panel members realize that athletic participation is no quick fix to the problem of teen pregnancy in the United States. Sport is best seen as part of a comprehensive program for solving what is now recognized as a multi-faceted, highly complex social phenomenon.

## 1. Increase Athletic Opportunities for Girls

Teen pregnancy and parenting activities are often cited as reasons for girls dropping out of school. The findings in this study suggest that athletic participation has a potential role to play in teen pregnancy prevention. Educators and local, state, and federal policy makers should ensure that girls have meaningful access to athletic opportunities. Special attention should be paid to the needs of low-income girls and girls of color, whose economic conditions limit the availability of athletic facilities, programs, and opportunities.

## 2. Get the Word Out: The Need to Publicize Research

The findings strongly suggest that athletic participation is related to lower rates of sexual activity and pregnancy among adolescent females. Parents, public health officials, school administrators, coaches, sex educators, physical education teachers, sports journalists, community leaders, and church officials should be alerted to the potential influences of athletic participation on female adolescent sexuality and pregnancy risk.

## 3. Enlist Coaches to Help

Coaching certification and education programs should include information about sexual behavior and teen pregnancy. It is common practice for athletic directors or coaches to provide their student-athletes with formal presentations or workshops on the dangers of drugs and alcohol, and, more recently, the importance of good sportsmanship. Information and clarification about responsible sexual behavior and reproductive health should be added to their curricula. The importance of female coaches in facilitating changes in girls' behavior should be emphasized.

## 4. Recruit Elite Female Athletes for Public Education

Elite amateur and professional athletes could be effective role models for responsible sexual conduct for young persons. Just as Rebecca Lobo has been helping to lead the national fight against breast cancer, for example, other high profile athletes can send positive messages to teens about abstinence, contraceptive use, or avoiding teen parenthood.



## 5. Promote Gender Equity in Athletics

Local, state and federal governments should increase gender equity in school and community sports programs. The rationale for such a strategic investment of resources in girls' sports programs should be based, in part, on the recognition that there is more at stake than athletic opportunity per se. Additional benefits may include later onset of sexual activity, reduced rates of intercourse, and lower pregnancy risk.

## 6. Use Sports as a Tool to Reach Adolescent Males

School-based and community-based pregnancy prevention programs, as well as family planning clinics, have focused primarily on females. Future interventions might exploit many boys' involvement and fascination with sports as a social vehicle for helping boys and young men rethink many locker room messages that equate manliness with aggression and sexual conquest. Educators and public health professionals should consider initiating prevention efforts in athletic settings in order to deliver appropriate information and teach boys responsible attitudes and behaviors.

## 7. A Call for Additional Research

The President's Council on Physical Fitness and Sports has called for research on the contributions of physical activity to girls' health<sup>13</sup>. Consistent with this mission, foundations and government agencies should fund research studies of the role of sports in the development of adolescent sexuality. More research is needed to understand the complex social, psychological, and physiological mechanisms through which athletic participation influences sexual decision-making, behavior, and pregnancy risk among girls and boys.



## Policy Advisory Panel

Martha Brady, The Population Council, New York City  
Sarah Brown, Director, The National Campaign to Prevent Teen Pregnancy  
Jane Fonda, The Turner Foundation  
Richard Lapchick, Executive Director, Center for the Study of Sport in Society (CSSS)  
Deborah Slaner Larkin, Member, President's Council on Physical Fitness and Sports  
Judy Mahle Lutter, President, Melpomene Institute for Research on Women's Health  
Carolyn McKenzie, President, Soccer in the Streets  
Don McPherson, Director, Mentors for Violence Prevention Program, CSSS  
Sister Denise Roche, President, D'Youville College  
Willye White, Five-time Olympian, President, Willye White Foundation  
Verna Williams, Chair, National Coalition for Women and Girls in Education

## Directions for Future Research

*The Women's Sports Foundation Report: Sport and Teen Pregnancy* points to the following directions for future research.

This study discusses the associations between athletic participation, sexual behavior and teen pregnancy. Future research should employ experimental designs in order to assess the causal impacts of athletic participation on the reproductive activity and pregnancy rates of girls and boys.

Research is needed to evaluate the effectiveness of programs that use athletic participation as a strategy for reducing teen pregnancy.

It is clear from this study that female and male adolescents respond differently to the athletic experience. Future research should examine how athletic participation influences the formation of gender identity and sexual identity in ways that either prevent or promote risk for pregnancy.

More research is necessary to understand how economic factors influence the interrelationships among athletic participation, sexual behavior, and teen pregnancy.

# Appendix A: Methods & Analysis

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Data for this report come from the national school-based Youth Risk Behavior Survey (YRBS) and from the regional Family and Adolescent Study (FAAS).

## **Youth Risk Behavior Survey**

The 1995 Youth Risk Behavior Survey, conducted by the Centers for Disease Control and Prevention, surveyed high school students regarding health-risk behaviors, including both athletic participation and a variety of sexual/reproductive behaviors. The YRBS employed a three-stage cluster sample design to generate a nationally representative sample of U.S. high school students. An 88-item questionnaire was administered in selected classrooms to students in schools chosen on the basis of urbanization, racial/ethnic makeup, and size. The response rate was 60%. African-American and Latino respondents were oversampled in order to facilitate hypothesis testing. Only white, African-American, and Hispanic/Latino respondents were included in the analyses presented here, for an overall sample of 9,009 respondents.

Our multivariate analysis assessed the relationships between athletic participation and sexual/reproductive behavior in adolescent girls and boys. Analysis of covariance (MANCOVA) tests were conducted controlling for respondents' gender, race, age and socioeconomic status (measured by the respondent's mother's level of education). Separate analyses were conducted for girls and for boys; for each gender, MANCOVAs were run for the race-combined sample as well as for whites only, African-Americans only and Latinos/Hispanics only.

Athletic participation was measured by combining responses to two items: "During the past 12 months, on how many sports teams run by your school did you play? (Do not include PE classes)" and "During the past 12 months, on how many sports teams run by organizations outside of your school did you play?" Responses were coded as "did not participate" (in any teams) and "did participate" (in one or more teams in or out of school).

Several categories of sexual/reproductive behavior variables were created. Age at first intercourse was coded into four categories; never had sexual intercourse, early (younger than 14), middle (14 or 15), and late (16 or older). Respondents were asked directly if they had ever had sexual intercourse. Subjects also reported the number of sex partners during the past three months. The total number of people with whom respondents reported having had intercourse was collapsed into four categories: none, one, two or three, and four or more. Since substantially fewer respondents reported multiple partners within the past three months, this variable was categorized as none, one, and two or more. Birth control variables were derived from responses to the question, "The last time you had sexual intercourse, what one method did you or your partner use to prevent pregnancy? (Select only one response)." Only those who were sexually active could provide meaningful responses to this question; thus the two birth control variables included here, "no birth control method used to prevent pregnancy" and "condoms used" were tested for sexually active respondents only. Finally, respondents were asked if they had ever been pregnant or gotten someone pregnant.

Control variables included sex, race, age and socioeconomic status. Only non-Hispanic white, non-Hispanic black, or Hispanic/Latino respondents were included in the sample. Age ranged from 14 to 18; a handful of 12- and 13-year-olds were coded as 14-year-olds. Mother's education was employed as a proxy for socioeconomic status.

## **Family And Adolescent Study**

A representative household sample of 699 adolescents and their families in the Western New York area was selected. Households had to have at least one adolescent aged 13 to 16 and at least one biological or surrogate parent in the initial wave, and were followed up in five successive waves. Black families were oversampled in order to permit more detailed analysis. Stringent follow-up procedures yielded a completion rate of 71% in the first year, and retention rates of over 90% in subsequent years. The present analysis used the third wave of data in 1992, which contained data on sexuality; wave three included 612 adolescent subjects aged 15 to 18. A team of two trained interviewers conducted face-to-face interviews with the target adolescent and one or both parents. Questions about sensitive issues such as sexual behavior were reported through a self-administered portion of the interview.

Because four of the five dependent variables were highly intercorrelated, multivariate analysis of covariance (MANCOVA) was performed to assess the impact of sports participation on age at first intercourse, lifetime number of partners and lifetime and recent frequency of sexual intercourse. ANCOVA tests were conducted on the pregnancy dependent variable. In each case, separate analyses were run for girls and for boys, and all analyses controlled for race, age, family income, family cohesion, and participation in non-sport extracurricular activities.

Athletic participation was measured by the question, "Do you participate in sports at school?" For a small number of cases (N = 26) where the respondents were no longer in school, responses to a corresponding question during the following year, "How often did you actively participate in sports, athletics or exercising (other than during school hours) in the last year?" were used to code them as athletes or non-athletes.

Sexual/reproductive behavior variables included self-reports of overall number of sex partners, lifetime frequency of sexual intercourse, frequency of intercourse in the past 12 months, and age at onset of sexual intercourse. Respondents were asked how many different people they had had sexual intercourse with in their lives, with response categories of none, one, two or three, and four or more. For both lifetime sexual experience and experience within the past 12 months, reported frequency of intercourse was divided into six categories; i.e., never, once, two or three times, four or five times, six to nine times and 10 or more times. The respondent's age when she or he first had intercourse was categorized as early (age 10-13), middle (14-15), late (age 16-18), or never (respondent has never had sexual relations).

Control variables included four demographic variables (race, gender, age and family income), family cohesion, and participation in extracurricular activities other than sports. Race was coded into two categories: black and white/other. Respondent age categories ranged from 14 to 18 (the sample also included a small number of 19-year-olds, recoded here to 18). Family income served as an indicator of socioeconomic status. To measure family cohesion, we employed Olson, Portner, and Lavee's 1985 FACES III scale. Using factor analysis, two non-athletic extracurricular activity variables were created; participation in the arts (including music and drama), and participation in academics (including academic clubs and literary organizations such as a school newspaper or yearbook). Like athletic participation, these variables were measured as a simple yes/no dichotomy.

# Endnotes

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1. A portion of the findings discussed here will appear in a forthcoming article in the Journal of Health and Social Behavior. See Miller, K. E., Sabo, D., Farrell, M.P, Barnes, G. M., Melnick, M. J. (1998). "Athletic participation and sexual behavior in adolescents: The different worlds of boys and girls" (forthcoming June). An unpublished paper on the linkage between athletic participation and teen pregnancy is available. See Sabo, D., Farrell, M. P., Barnes, G., Melnick M., & Miller, K. E. (1997). "High school athletic participation, sexual behavior and adolescent pregnancy: Some preliminary findings," American Sociological Association 1997 Annual Meeting (August), Toronto, Canada. Finally, as a part of a larger study of risky behavior among adolescents, Zill, N., Nord, C. W., & Loomis, L. S. (1995) looked at the relationship between athletic participation in the sophomore year and risk for teenage childbearing using data from the National Education Longitudinal Study. See Adolescent time use: Risky behavior and outcomes: An analysis of national data, Rockville, MD: Westat, Inc.
2. Currently, intervention programs to lower adolescent risk for pregnancy operate in every state, and much research activity has been devoted to evaluating their effectiveness. However, the results to date are mixed, and many of these programs appear to have no appreciable returns. None of these prevention programs, or the supportive research generated so far, address the contributions of athletic participation. For discussion of prevention programs see (1) Kirby, D. (1997). No easy answers: Research findings on programs to reduce teen pregnancy, Washington, DC: The National Campaign to Prevent Teen Pregnancy, and (2) Males, M. (1993). "School-age pregnancy: Why hasn't prevention worked?" Journal of School Health, 63(10):429-432.
3. The National Campaign to Prevent Teen Pregnancy (Fall 1997). Shalala calls for creating safe passages for youth. Campaign Update, pp. 2, 3. Washington, DC: Author.
4. For example, two pioneering programs in the New York City area are using sports and physical activity as a central vehicle for educating girls in relation to reproductive health, dating, and teen pregnancy: (1) The Ivy League: Uptown W.I.N.S. (Women in Neighborhood Sports) Program, 57 Wadsworth Avenue, New York, NY 10033, and (2) the F.E.G.S./Girls in Action Program, 145-00 Springfield Blvd., Springfield Gardens, NY 11413.
5. The National Campaign to Prevent Teen Pregnancy (1997). Whatever Happened to Childhood? The Problem of Teen Pregnancy in the United States. Washington, DC: Author.
6. Moore, K. A., Driscoll, A. K., & Lindberg, L. D. (1998). A Statistical Portrait of Adolescent Sex, Contraception, and Childbearing. Washington, DC: National Campaign to Prevent Teen Pregnancy.
7. Zabin, L. S. & Hayward, S. C. (1993). Adolescent Sexual Behavior and Childbearing. Newbury Park: SAGE Publications.
8. It is important to note that for some females early sexual onset is nonvoluntary, particularly among younger children; e.g., date rape, sexual abuse by a relative. See K. A. Moore, C. W. Nord, J. L. Peterson (1989). "Nonvoluntary sexual activity among adolescents." Family Planning Perspectives, 21:110-114.
9. Sabo, D., Melnick, M., Vanfossen, B. (1989). The Women's Sports Foundation Report: Minorities in Sport. Eisenhower Park, NY: The Women's Sports Foundation.
10. Sabo, D., Melnick, M., & Vanfossen, B. (1993). High school athletic participation and post-secondary educational and occupational mobility: A focus on race and gender. Sociology of Sport Journal, 10(1):44-56.
11. Sabo, D. & Melnick, M. (1996). Athletic participation and risk for adolescent pregnancy: Is there a connection? A paper presented for The Population Council's Gender, Family and Development Program conference, Improving the Odds for Healthy Futures: The Role of Sport in Girls' Lives, New York City (June 4).
12. See Messner, M. A. & Sabo, D. (1994). Sex, Violence, and Power in Sports: Rethinking Masculinity. Freedom, CA: Crossing Press; Messner, M. A. & Sabo, D. (Eds.) (1990). Sport, Men, and the Gender Order. Champaign, IL: Human Kinetics Publishers; Sabo, D. & Runfola, R. (Eds.) (1980). Jock: Sports and Male Identity. Englewood Cliffs, NJ: Prentice-Hall.
13. The President's Council on Physical Fitness and Sports report, Physical Activity & Sport in the Lives of Girls: Physical and Mental Health Dimensions from an Interdisciplinary Approach (May, 1997). Washington, DC: Author.