

# THE WOMEN'S SPORTS FOUNDATION® REPORT:

## HEALTH RISKS AND THE TEEN ATHLETE





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## About the Women's Sports Foundation

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Founded in 1974 by Billie Jean King, the Women's Sports Foundation® is a charitable educational organization dedicated to increasing the participation of girls and women in sports and fitness and creating an educated public that supports gender equity in sport. The Foundation's Participation, Education, Advocacy, Research and Leadership programs are made possible by individual and corporate contributions. 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.

This educational publication is made possible by the support of our members and donors. The Women's Sports Foundation is a 501(c)(3) nonprofit organization. Donations to the Foundation are tax-deductible to the full extent of the law. Please give generously to support our mission and activities.

## Authorship and Acknowledgments

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# Executive Summary

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This study provides an objective assessment of the relationship between sports and adolescent health. American teenagers today encounter a wide range of potential health risks, and the choices they make can determine not only their health and well-being but their very survival as well. How does sports participation fit into the preventive picture of teenage health in the United States?

Athletic participation is ordinarily seen by athletes, coaches, parents, and other interested parties as a route to good health and social success. However, popular beliefs about sport also emphasize the need to take chances; our most respected athletes have been those who took risks on the field, court, or track and made them pay off. Risk-taking sometimes reflects courage, shrewdness, and strength of will; but it can have negative long-term health effects as well. The present study suggests that each of these messages resonates in the lives of adolescent athletes.

*The Women's Sports Foundation Report: Health Risks and the Teen Athlete* offers a comprehensive evaluation of the linkages, both positive and negative, between sport and adolescent health risks. The Women's Sports Foundation presents these findings in order to foster serious dialogue over the benefits and risks of adolescent athletic participation. That sports have positive impacts on many young people's lives cannot be argued. The Women's Sports Foundation promotes increased opportunities for girls and women in sports and fitness; however, the Foundation also recognizes that sport is not a perfect institution. This report analyzes some of the multifaceted connections of the sports experience to the health, safety, and fitness of American teenagers.

We explore the ways in which sports and health risks are related for both girls and boys in this study. It is clear that girls and boys have, more than ever today, a shared stake in athletics. Over the past few decades, as girls and women have flooded into what was once the exclusive purview of boys and men, a central question has arisen: Will female athletes embrace the traditional masculine sport culture, adopting risky behavior patterns previously associated with males? Or will they transform the institution of sport as we know it, making it a safer and healthier setting for both girls and boys? As the dialogue continues, this report makes a unique and necessary contribution to the debate.

The findings and conclusions of this report were derived from analysis of the 1997 Youth Risk Behavior Survey, a nationally representative survey of 16,262 public and private high school students in grades 9 through 12, developed by the Centers for Disease Control and Prevention. The Youth Risk Behavior Survey is conducted biannually to assess the prevalence of youth behaviors that influence health outcomes. It includes, but is not limited to, data on suicidal thoughts and attempts; perceptions and behaviors related to body image and weight loss; vehicular risk-taking (including seatbelt use and driving under the influence of alcohol); and substance use (tobacco, alcohol, and other illicit drug use, including anabolic steroids). We carried out logistic regression analyses to compare athletes' and nonathletes' odds of engaging in each of these health-risk behaviors. Where appropriate, comparisons were also made with "highly involved" athletes (that is, teenagers who reported participating in three or more sports teams over the course of the year prior to the survey).

Some specific findings documented by this study are listed below. All comparisons are made *within* genders; that is, they are made between athletes and nonathletes of the same gender (with some comparisons between the subgroup of highly involved athletes and nonathletes), rather than between female and male adolescents. Key findings include:

## **1. Athletes Were Less Likely To Use Illicit Drugs.**

Playing sports was associated with reduced risk for illicit drug use. Female athletes were less likely than female nonathletes to use marijuana, cocaine, or "other" drugs (such as LSD, PCP, speed, or heroin). Male athletes were less likely than male nonathletes to use marijuana, cocaine, crack cocaine, inhalants, or "other" drugs.

## **2. Findings On Anabolic Steroids Were Mixed.**

Male athletes overall were no more likely to use anabolic steroids than male nonathletes were. Female athletes overall, and highly involved male athletes, were both nearly one and a half times more likely than their nonathletic counterparts to use steroids; and highly involved female athletes were nearly twice as likely to do so. However, only about 2% of teenage girls used anabolic steroids overall.

## **3. Only Highly Involved Athletes Were More Likely To Binge Drink.**

Contrary to popular belief, neither female nor male athletes were significantly more likely than nonathletes to drink alcohol overall, or to drink to excess. However, highly involved athletes of both genders were somewhat more likely to binge drink than nonathletes.

## **4. Athletes Were Less Likely To Smoke Cigarettes, But More Likely To Use Chewing And Dipping Tobacco.**

Athletes were less likely than nonathletes ever to have smoked cigarettes regularly or to have smoked within the past month. However, both male and female athletes were more likely to use chewing/dipping tobacco; in fact, highly involved female athletes were more than three times as likely to do so as female nonathletes. Only about 2% of teenage girls used chewing/dipping tobacco overall.

## **5. Athletes Were Less Likely To Be Suicidal.**

Both female and male athletes were less likely than their nonathletic counterparts to seriously consider or make a plan for committing suicide. Male athletes were also less likely than male nonathletes to actually attempt suicide. However, highly involved athletes of both genders who do attempt suicide were nearly twice as likely as suicidal nonathletes to require medical treatment as a result.

## **6. Female Athletes Had More Positive Body Images, But Were More Likely To Attempt Weight Loss.**

Both female and male athletes were less likely than nonathletes to describe themselves as overweight. However, female athletes were more likely to try to lose weight; and though they were more likely than nonathletes to use dieting and exercise to do so, highly involved female athletes were also more likely to use vomiting and/or laxatives to lose weight.

## **7. Female Athletes Were More Likely To Wear Seatbelts, But More Likely To Drive After Drinking.**

Findings regarding the relationship between athletic participation and vehicular risk were mixed. Female athletes were a third more likely than nonathletes to wear seatbelts. Female athletes overall, and highly involved athletes of *both* genders, were also more likely to drive an automobile after drinking than nonathletes.

Our results show that athletic participation has both positive and negative implications for adolescent health in America today. In order to guide athletes, coaches, parents, and communities to better use sports as a means of promoting adolescent health, a list of policy recommendations appears at the end of this report.

# Introduction

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As children move through the adolescent years into adulthood, they face a complex set of obstacles and dangers, for which they are uniquely at risk. American teenagers negotiate a battleground of health risks; the choices they make influence their health and well-being later in life, as well as their chances of reaching adulthood at all.<sup>1</sup> Increasingly, adolescent injuries and other negative health consequences stem from preventable behaviors.<sup>2</sup>

Conventionally, athletic participation has been offered as an antidote to adolescent risk-taking. Parents routinely encourage their children to play sports, which not only provide a setting within which teenagers' time is structured and supervised but also teach and reinforce values such as sportsmanship, self-discipline, and playing by the rules. Teenagers who play sports, the logic suggests, have substantial incentives not to take chances with their health and well-being. Athletic participation also helps to build self-esteem, confidence, and a sense of commitment to conventional expectations, providing athletes with personal and social resources to better deal with the trials of adolescence.

However, sport as an institution (particularly professional men's sports) has also come under fire for its association with domestic violence, illegal gambling, and substance use.<sup>3</sup> The locker-room culture can condone or even promote some kinds of health risk, and athletes often must learn to take chances with their bodies in order to excel in their sports. It may even be that individuals who are inclined toward some kinds of risk gravitate toward participation in sports.<sup>4</sup>

The relationship between sport and health-risk behavior in adolescents is further complicated by the wide range of risky behaviors teens pursue, from precocious sexual activity<sup>5</sup> to substance use, pathogenic weight loss behavior, or suicide. To assess possible links between sports participation and adolescent risk-taking, it is necessary to evaluate a wide range of behaviors.

Furthermore, in recent years we have seen great gains in girls' and women's participation rates in sports. Where in 1970, only one in 27 girls played organized sports during their high school career, by 1994, that ratio had jumped to one in three. A record number of high school girls—more than 2.5 million—played high school sports during the 1998-1999 school year, and approximately 41% of high school athletes today are female.<sup>6</sup> The entry of women into this once exclusively masculine preserve means that, for the first time, girls and boys have a shared stake in the health outcomes of athletic involvement. Much of the existing research on the sport/risk relationship has focused on the behavior of college-age male athletes. This study explores the extent to which adolescent female athletes' health-risk behavior resembles that of their male counterparts.

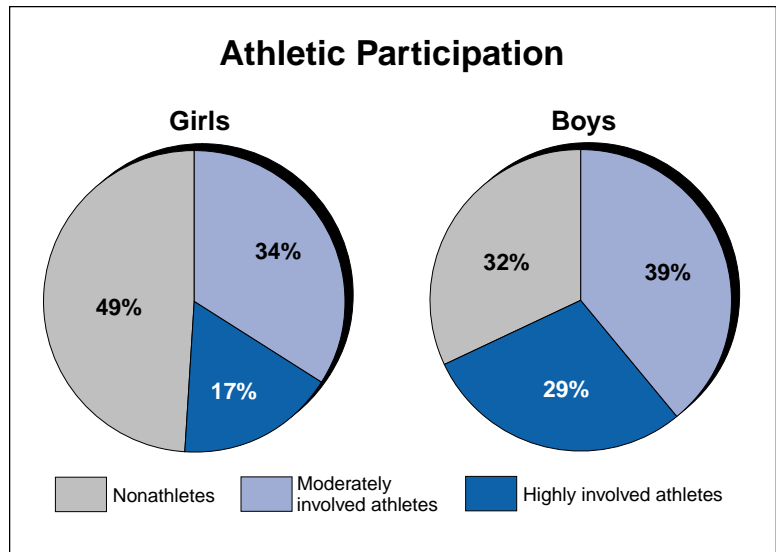
The results of this study suggest that athletic participation is a resource that high-school-age adolescents may use to resist pressure to engage in some activities detrimental to their health, such as cigarette smoking and illicit drug use. Sport does indeed constitute a useful strategy for helping athletes to negotiate the hurdles of adolescence. At the same time, however, playing sports is also associated with greater risk for binge drinking and using smokeless tobacco. The areas of greater risk correspond all too well to the problem areas of professional sports. This parallel between the adolescent and adult sport worlds underscores the need for parents, coaches, and athletes themselves to recognize the potential dangers. No teenager is forced to dip snuff, or drink to excess; but the unwary athlete, lacking guidance and advice about the consequences of such activities, is an athlete susceptible to the often intangible pressures to do so.

Odds ratios (ORs) were calculated for female and male athletes, for each of the health-risk behaviors under study. The advantage of examining odds ratios, rather than simply reporting the percentages of athletes and nonathletes who take various risks, is that odds ratios are calculated in a way that controls for the effects of other factors that might also influence health-risk behaviors. In this study, the following potential confounding factors were controlled: age, race/ethnicity, social class, and type of residential area. Thus when the health implications of percentage findings and odds ratio findings appear to contradict each other, more weight should be given to the latter.

Odds ratios (hereafter OR) in this study estimate the likelihood that athletes will engage in a given behavior (such as smoking cigarettes), compared to the likelihood that nonathletes will do so. An OR of 1.00 indicates a “toss-up” (odds of 1:1), meaning that athletes and nonathletes are equally likely to engage in the behavior in question. An OR greater than 1.00 means that athletes have a greater likelihood than nonathletes; an OR less than 1.00 means a lower likelihood. The greater the number over 1.00, the more likely the behavior by athletes; the smaller the number under 1.00, the less likely.

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. We have provided comparisons of nonathletes and athletes; where appropriate, specific findings for a subset of athletes who are “highly involved” (that is, participants on three or more teams in the year prior to the survey) are included as well.

Of the 16,076 high school students who answered questions about their recent athletic participation on the 1997 Youth Risk Behavior Survey, 60% (n=9711) reported having played on at least one sports team, organized by school and/or community, in the year prior to the survey. Fifty-one percent of girls (n=3727) and 68% of boys (n=5973) had played on at least one team. Overall, one in four respondents qualified as “highly involved.” As with overall athletic participation, this level of involvement was more common among boys than girls; 43% of male athletes (n=2583) and 33% of female athletes (n=1270) reported participation on at least three teams.





# Illicit Drug Use

With overall adolescent substance use on the rise, misuse of illicit drugs by teenagers has remained a major public health concern throughout the past decade.<sup>7</sup> Use of illicit substances has been tied to other adolescent health risks, including risky sexual activity,<sup>8</sup> suicide,<sup>9</sup> drinking,<sup>10</sup> delinquency,<sup>11</sup> and school dropout.<sup>12</sup> Understanding the contemporary problem of adolescent drug use is further complicated by the wide variety of drugs in current use e.g., marijuana, cocaine, inhalants, LSD, PCP, and heroin).

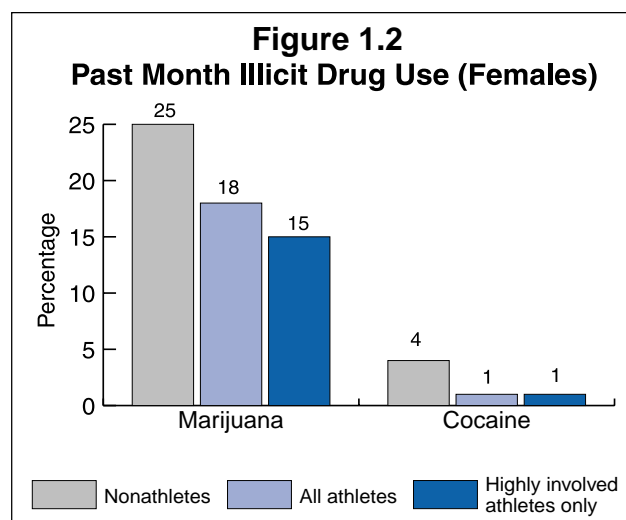
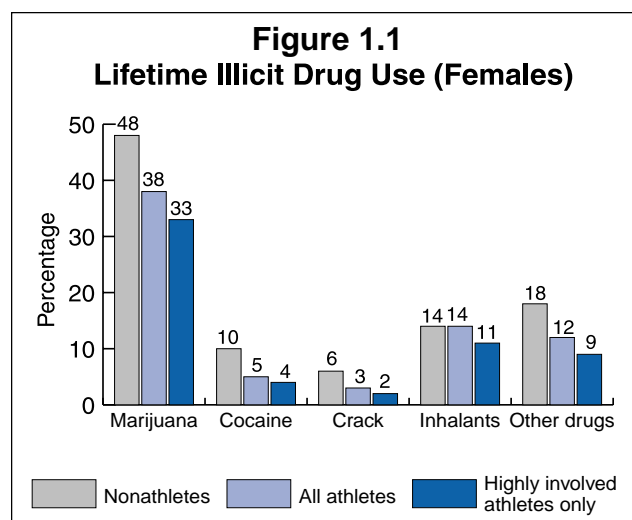
There exists no clear picture of the relationship between illicit drug use and athletic participation. Many studies have not found a significant difference in drug use between athletes and nonathletes;<sup>13</sup> others have found that athletes are less likely to use most illicit drugs, while still others report the opposite—that athletes are *more* likely to use drugs, particularly marijuana<sup>14</sup> and anabolic steroids (discussed elsewhere). Here we attempt to address the question of whether high school sports may contribute to preventive efforts to curb illegal drug use among adolescents by assessing the odds of use by nonathletes, athletes, and highly involved athletes.

This study compared the lifetime usage rates of marijuana; cocaine; crack; inhalants (defined as sniffing glue, breathing the contents of aerosol spray cans, or inhaling paints or sprays to get high); and “other drugs” (generally harder drugs, defined as “any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin”) for high school athletes and nonathletes. We also examined the recent (past month) rates of marijuana and cocaine use by our respondents. However, since racial and ethnic differences in drug use have been repeatedly documented—that is, black and Asian American adolescents tend to have substantially lower usage rates than white or Latino youth<sup>15</sup>—the percentages of users in each category are less important than the calculated odds ratios, which take into account race and other control factors.

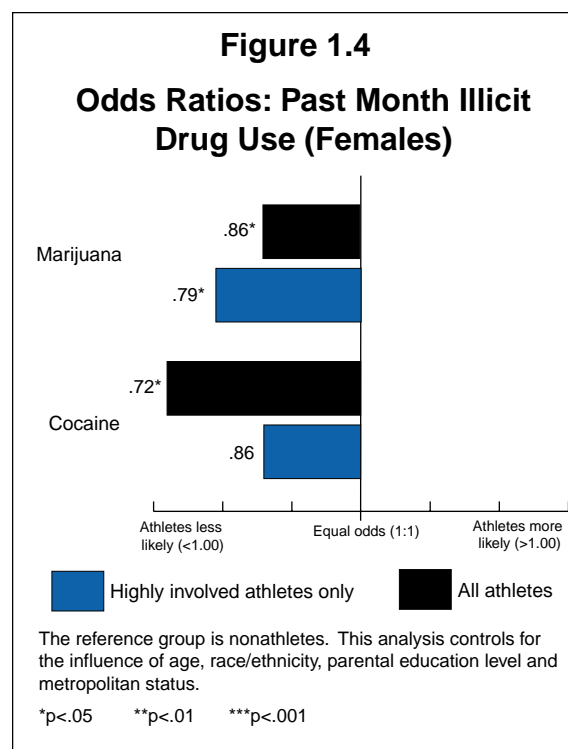
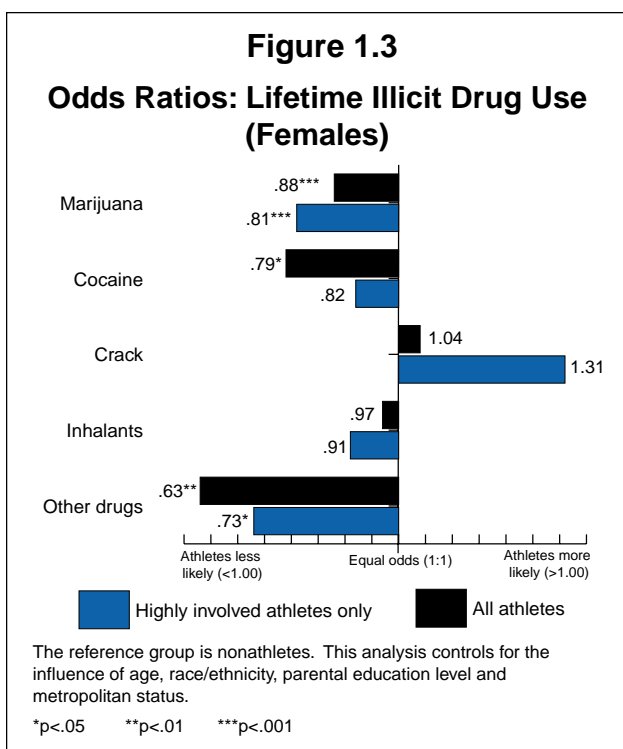
## Findings: The Girls

Our findings showed that a greater proportion of female nonathletes report lifetime drug use than female athletes (see Figure 1.1). More nonathletes than athletes had used marijuana (48%, n=1713 and 38%, n=1408, respectively), cocaine in any form (10%, n=343 and 5%, n=181, respectively), crack cocaine (6%, n=204 and 3%, n=103, respectively), and “other” (harder) drugs (18%, n=651 and 12%, n=465, respectively).

Even fewer highly involved female athletes reported using each of these drugs: 33% (n=413) had tried marijuana; 4% (n=53) had tried cocaine; 2% (n=28) had tried crack; and 9% (n=113) had tried “other” drugs. Though use of inhalants was the same for nonathletes and for athletes overall (approximately 14%), only 11% (n=143) of highly involved athletes had used these substances.





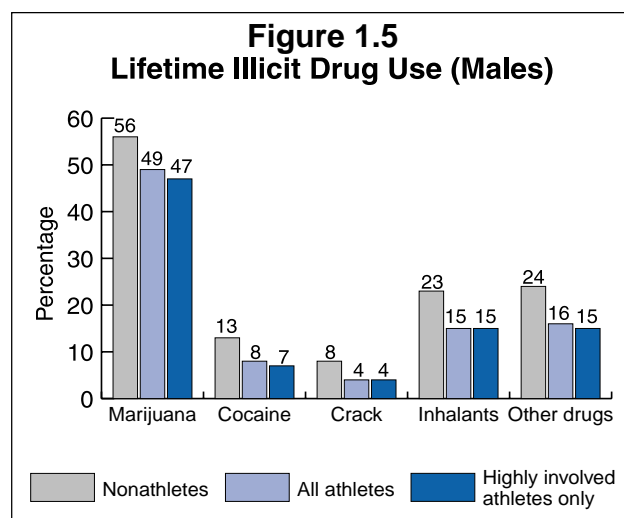


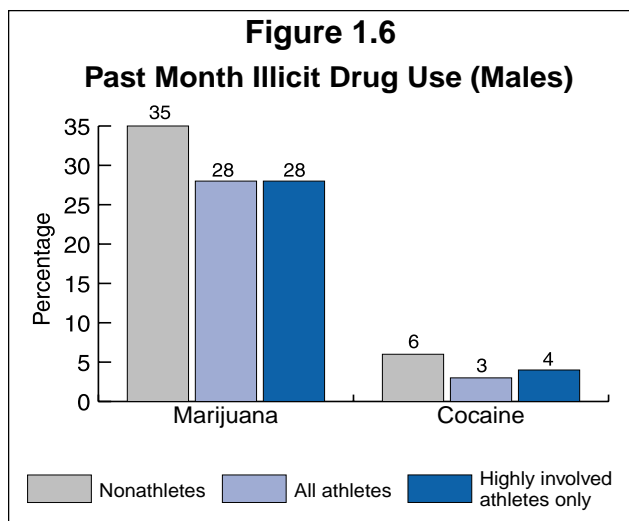
Female nonathletes also reported more drug use than female athletes within the month prior to the survey (see Figure 1.2). Specifically, one in four female nonathletes (25%; n=880) had used marijuana, compared to fewer than one in five female athletes (18%; n=673) and 15% (n=190) of the highly involved female athletes. Four percent (n=125) of the nonathletes had recently used cocaine, as had 1% of athletes overall (n=50) and 1% (n=11) of highly involved athletes.

Several of the differences noted above were significant after the introduction of controls for age, race/ethnicity, social class, and metropolitan status. Compared to female nonathletes, girls who played sports were significantly less likely to have ever used marijuana (OR=.88, p<.01), cocaine (OR=.79, p<.05), or “other” drugs (OR=.63, p<.01). However, the groups did not significantly differ in the lifetime use of crack cocaine or inhalants (see Figure 1.3). Female athletes also had lower odds of recent use of marijuana (OR=.86, p<.05) and cocaine (OR=.72, p<.05) (see Figure 1.4).

## Findings: The Boys

We also found that proportionally fewer male athletes reported lifetime drug use than nonathletes (see Figure 1.5). Fifty-six percent (n=1546) of male nonathletes had ever tried marijuana; 13% (n=365) had ever used cocaine in any form; 8% (n=216) had experience with crack cocaine; 23% (n=628) had ever sniffed inhalants to get high; and 24% (n=653) had ever experimented with “other” drugs. Respective figures for male athletes were 49% (n=2877) for marijuana use; 8% (n=448) for cocaine use; 4% (n=233) for crack use; 15% (n=917) for inhalant use; and 16% (n=961) for use of “other” drugs. The proportion of highly involved male athletes was slightly lower than that of male athletes as a whole.





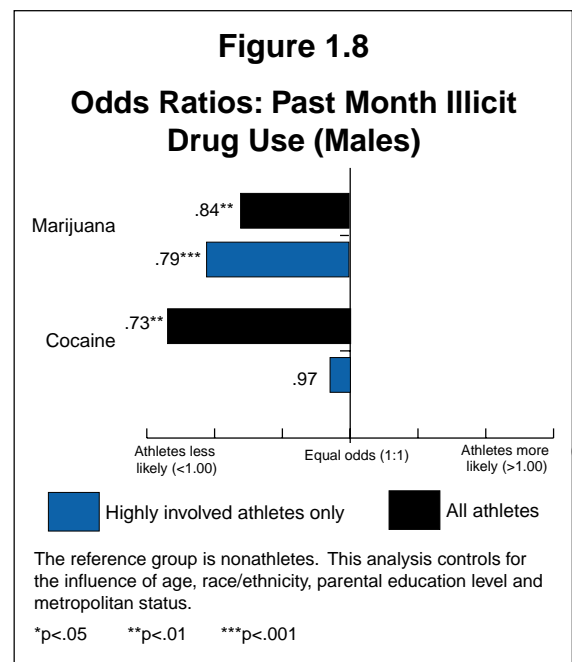
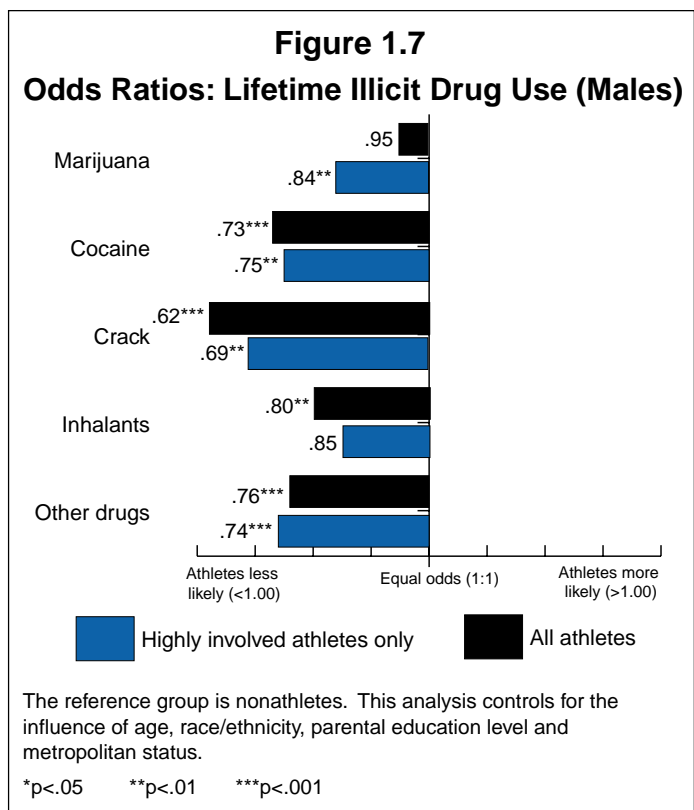
Recent drug use was also higher among male nonathletes than among their athletic counterparts (see Figure 1.6). Thirty-five percent (n=957) of nonathletes and 28% (1668) of athletes reported using marijuana within the past month; the percentages for recent cocaine use were 6% (n=159) and 3% (n=191), respectively.

Compared to male nonathletes, male athletes were significantly less likely to report lifetime use of cocaine (OR=.73,  $p<.001$ ), crack (OR=.62,  $p<.001$ ), inhalants (OR=.80,  $p<.01$ ), or “other” drugs (OR=.76,  $p<.001$ ) (see Figure 1.7). Male athletes as a whole had about the same odds of lifetime marijuana use as nonathletes. However, highly involved male athletes were less likely than nonathletes to have ever used this substance (OR=.84,  $p<.01$ ). Athletes also had lower odds of recent use (in the last month) of marijuana (OR=.84,  $p<.01$ ) and cocaine (OR=.73,  $p<.01$ ) (see Figure 1.8).

## Evaluation

Clearly, these results indicate that high school athletes of both genders share a lower risk for overall lifetime or recent drug use than nonathletes. The evidence suggests a compelling pattern of association between athletic participation and reduced risk for illicit drug use. Public health officials should look closely at the potential contributions of high school sports for minimizing the use of illegal drugs among both female and male adolescents.

In recent years there has been an erosion of fiscal resources to support extracurricular activities in many school districts across the nation, particularly those situated in more economically disadvantaged urban and rural communities. Despite good intentions, many communities find themselves forced to cut sports programs in order to pay other bills. In those school districts that have created “pay to play” systems (i.e., where parents must pay fees for their children to participate), lower-income families may not be able to afford to pay the price of admission. To the extent that high school athletics may provide a social and educational deterrent to illicit drug use, government officials and public health leaders may need to step up research, policy formation, and fiscal support in these areas.



# Anabolic Steroid Use

The use of anabolic steroids by adolescents for body building purposes or enhancement of athletic performance has been strongly condemned by the American Academy of Pediatrics.<sup>16</sup> Side effects of anabolic steroid use (and there are many) include physical and psychological health risks such as cardiovascular disease, liver disease, reproductive abnormalities, acne, mood swings, and increased aggression. Steroid use by high school students has also been linked to a number of the other health-risk behaviors addressed in this report, such as suicidal ideation, driving while intoxicated, failing to wear a seatbelt, fighting, and carrying a weapon.<sup>17</sup>

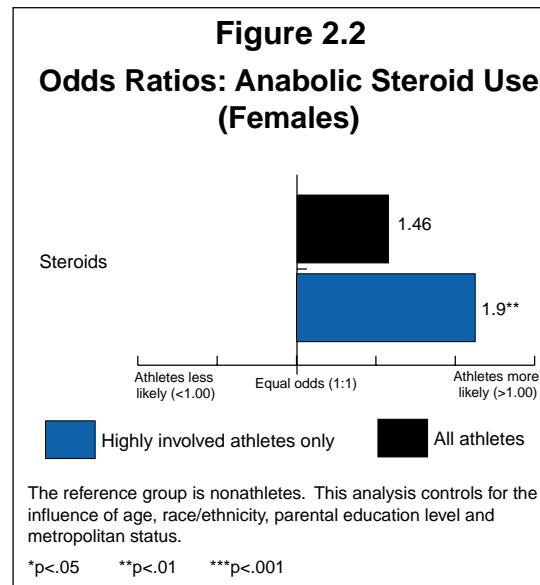
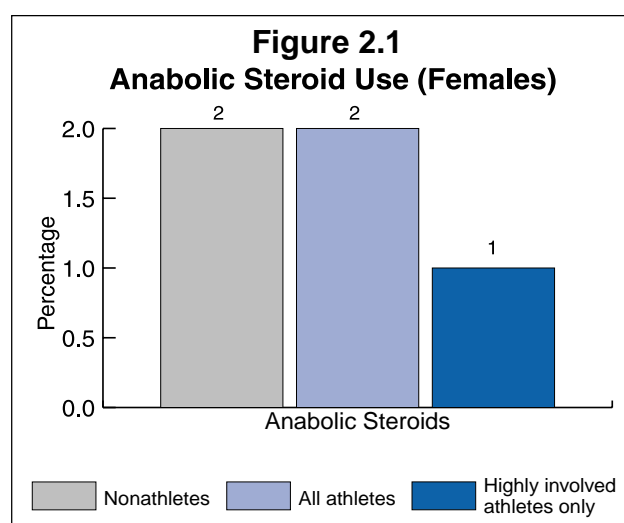
Fortunately, relatively few teenagers use steroids. Although estimates vary, approximately 5-10% of male adolescents and up to 2.5% of female adolescents report that they have used this substance.<sup>18</sup> Some researchers contend that the rate of steroid use increased among adolescent females in the early 1990s, while it remained stable among adolescent males during the same period. These same researchers estimated that in 1995, there were 175,000 female and 375,000 male anabolic steroid users in American high schools.<sup>19</sup>

The use of anabolic steroids among adolescent athletes and nonathletes has been the focus of considerable study. One limitation of much of the previous research, however, is that the differences in usage rates between athletes and nonathletes were often inferred but seldom measured. Accordingly, in this study, we have both measured the rates of anabolic steroid use by females and males and calculated relative risks of steroid use by nonathletes, athletes, and highly involved athletes. Respondents were asked if they had ever “taken steroid pills or shots without a doctor’s prescription.”

## Findings: The Girls

For girls, comparisons of steroid use proved somewhat misleading (see Figure 2.1). About 2% (n=79) of nonathletes and nearly 2% (n=64) of athletes reported they had tried using anabolic steroids; only about 1% (n=17) of highly involved female athletes reported doing so, even though previous research led us to expect that heavy involvement with sports would be associated with higher steroid use.

However, once the influence of demographic factors was controlled, statistical analysis (see Figure 2.2) revealed that athletic participation did indeed carry with it greater odds of anabolic steroid use by both female athletes as a whole (OR=1.46,  $p<.05$ ) and highly involved female athletes (OR=1.90,  $p<.01$ ). Thus, girls who played sports were nearly half again as likely as nonathletes to have taken steroid pills or shots at some point in their lives; girls who played on three or more sports teams were nearly twice as likely as nonathletes to have done so.



## Findings: The Boys

Male nonathletes reported slightly more anabolic steroid use than athletes (see Figure 2.3). About 5% (n=127) of nonathletes had used this substance, compared to 4% (n=227) of athletes. However, as with the girls, these percentages do not take into account differences in average age, racial/ethnic makeup, social class, or metropolitan status.

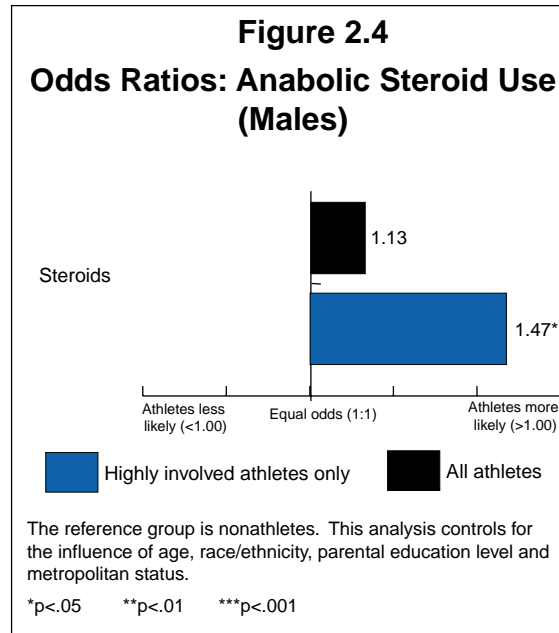
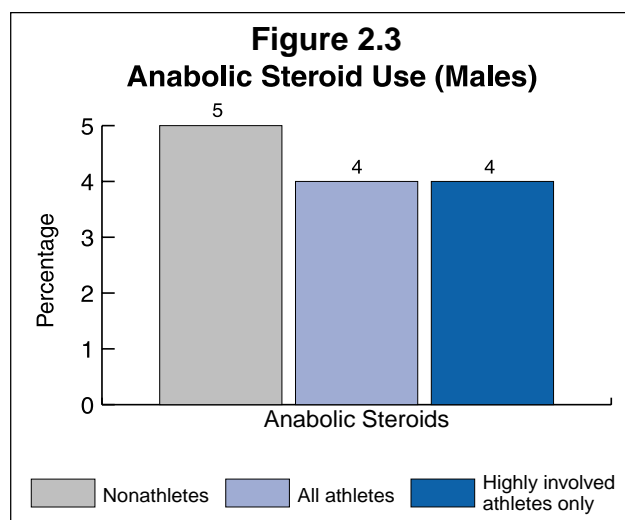
Further analysis with the appropriate controls did not in fact yield significantly greater odds of steroid use for male athletes overall, compared to male nonathletes (see Figure 2.4). However, highly involved male athletes were significantly more likely than nonathletes to have used anabolic steroids (OR=1.47,  $p<.05$ ).

## Evaluation

Our findings confirm the low prevalence of anabolic steroid use for boys and especially for girls, particularly in comparison to the use of other illicit substances. However, athletic participation does indeed come with a higher risk of steroid use, particularly for highly involved athletes. The elevated risk may be one consequence of the pressure to win at all costs, or to sacrifice health for a higher standing on the ladder of organized sports; this appears to be especially the case for teenagers who invest heavily in athletics (measured here by the number of teams they join).

In confirmation of previous research, we did find that boys reported more steroid use than girls. However, the heightened risk associated with playing sports was most notable for highly involved female athletes. We speculate that perhaps male adolescents who do not participate in organized team sports may nevertheless feel pressure to “bulk up,” resulting in similar risks for them as well. Outside the sports setting, with its emphasis on physical fitness, competition, and excellence rather than conventional femininity, teenage girls may not experience the same pressures. However, as girls and women move in ever greater numbers into the world of sport, their vulnerability to the health risks associated with steroid use may be expected to increase. Though the various agencies that oversee college and professional sports are already alerted to the dangers of steroid use, special attention should be paid to providing drug education and guidance to young female athletes, especially those most deeply involved with sports.

It is encouraging to note that we found no evidence to support previous claims of increasing steroid use by females in the 1990s. Comparisons between the 1995 and 1997 Youth Risk Behavior Survey findings show that, whereas the overall lifetime prevalence of anabolic steroid use reported by females in 1995 was 2.4%,<sup>20</sup> the corresponding percentages for the 1997 YRBS data analysis were 2.0% for females. Though estimates vary depending on the nature of the population of adolescents sampled, these two administrations of a nationwide survey followed the same sampling procedures and may be assumed to be more comparable than most other estimates. We conclude, then, that the prevalence of anabolic steroid use by female adolescents appears to have declined slightly.



# Alcohol Use

It is sometimes assumed that young athletes drink less than nonathletes in order to comply with training rules, to maximize performance, and to avoid getting into trouble with coaches. The “clean mind, clean body” image of the athlete presupposes that adolescents who play sports avoid substances that would pollute the temple of the body.

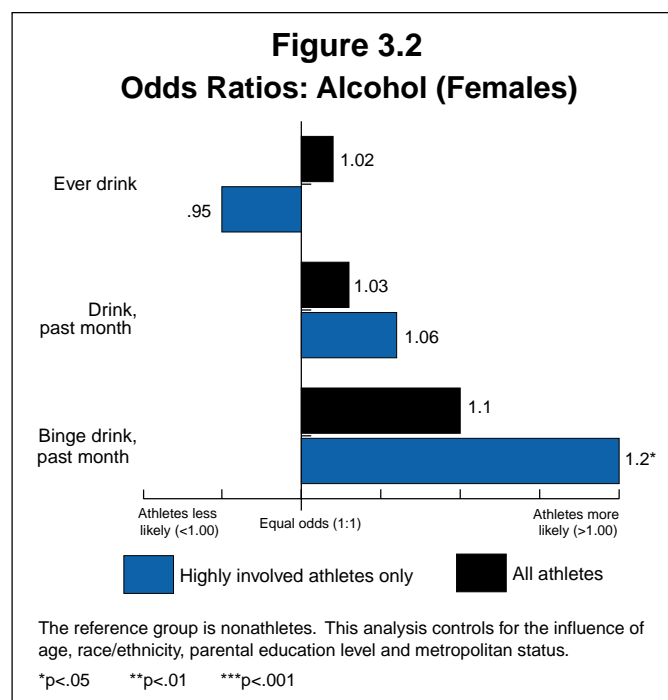
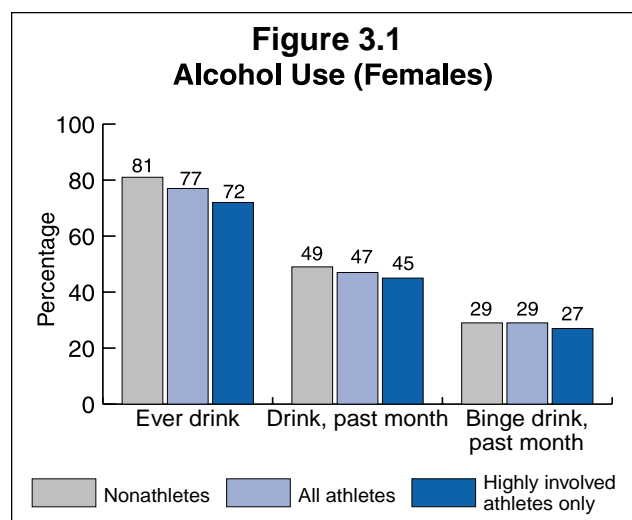
An opposing argument is that because alcohol use is considered “normal” and desirable in many sports subcultures, especially in traditional men’s sports, athletes are likely to drink more in order to bolster their athletic identity and to feel a part of the group. Furthermore, participation on a sports team offers both social status and opportunities for group recreation that commonly involve alcohol consumption. Finally, young males, and increasingly young females, are avid consumers of sport media where many advertisements for alcohol appear, such as sports magazines and televised sports programs.<sup>21</sup>

Research shows that college athletes use alcohol and binge drink more frequently than nonathletes.<sup>22</sup> The evidence is less clear when it comes to high school athletes, though there is some evidence to suggest that a connection between sport and alcohol exists at this level as well.<sup>23</sup> For this study we tested whether teen athletes were more or less likely than nonathletes to have ever tried alcohol, to drink during the past month, and to binge drink (i.e., five or more drinks of alcohol in a row, within a couple of hours) during the month prior to the survey.

## Findings: The Girls

More female nonathletes than athletes reported drinking (see Figure 3.1). Eighty-one percent (n=2664) of female nonathletes surveyed in this study reported having had at least one drink of alcohol in their lives, compared to 77% (n=2656) of female athletes. Furthermore, 49% (n=1679) of nonathletes but only 47% (n=1709) of athletes had consumed alcohol during the month prior to the survey. Rates of binge drinking were identical across both categories at 29% (n=1008 for nonathletes; n=1061 for athletes).

Further analysis after controlling for demographic variables indicated that there were no significant differences between female athletes and nonathletes with respect to reported lifetime or recent alcohol consumption (see Figure 3.2). Nor were athletes as a whole any more or less likely to binge drink than nonathletes. When the highly involved subsample of female athletes was compared with nonathletes, however, they proved significantly more likely to binge drink (OR=1.20, p<.05).



## Findings: The Boys

For boys, playing sports did not appear to be related to alcohol use (see Figure 3.3). About 80% of all boys reported having tried alcohol at some point in their lives, regardless of their athletic status. Fifty-five percent of male nonathletes and 53% of athletes had consumed alcohol within the past month; 36% (n=988) of nonathletes, 38% (n=2258) of all athletes, and 39% (n=1001) of highly involved athletes had engaged in binge drinking during the same time frame.

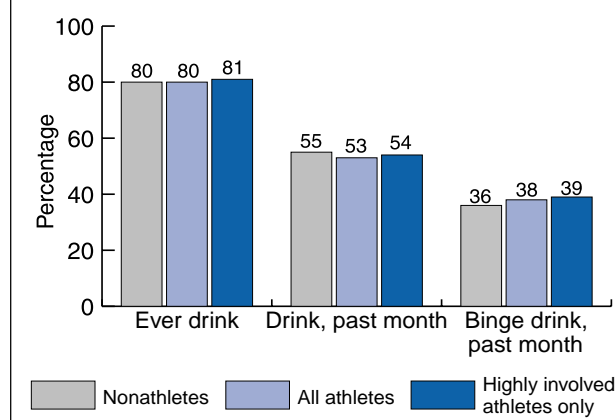
As expected, further analysis after controlling for age, race, and other factors revealed no significant differences in the odds of nonathletes' and athletes' having consumed alcohol, either in their lifetimes or in the month prior to the survey. Like the girls, male athletes overall were not significantly more likely to binge drink than nonathletes; highly involved athletes, however, were (OR=1.24,  $p<.01$ ) (see Figure 3.4).

## Evaluation

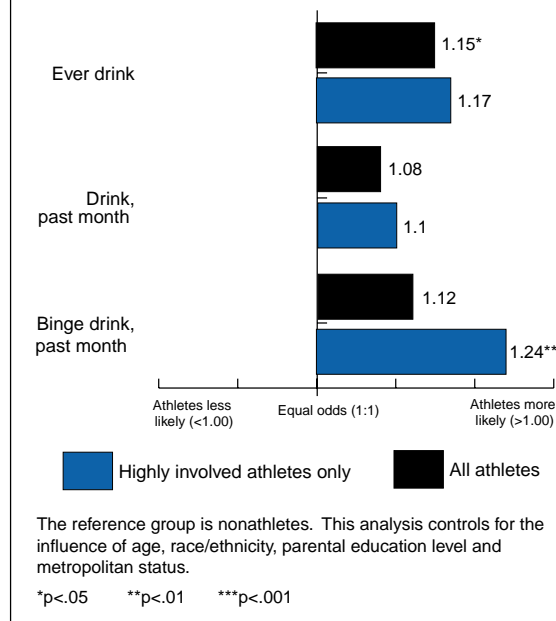
About four out of five high school students have tried alcohol. That the overall rates of alcohol use did not differ substantially between girls and boys is not surprising. In recent years, high school girls' alcohol use patterns have begun to approach those of boys,<sup>24</sup> although the proportion of high school boys who are recent drinkers and/or binge drinkers remains clearly higher than that of their female counterparts. We were surprised, however, to find that, for both genders, the overall prevalence of alcohol use by athletes and by nonathletes were more similar than not. The only consistently significant indication that athletes were at greater risk for alcohol use pertained to binge drinking among the highly involved athletes. More extensive involvement with high school sport was associated with elevated risk for binge drinking, regardless of gender.

The evidence suggests that what matters most with respect to unhealthy drinking patterns is not so much athletic participation itself as the extent of involvement in sports. We speculate that, to some extent, school officials and/or local authorities overlook or tolerate drinking among the more prominent athletes. Alternatively, it may be that—compared to adolescents for whom sport is but one of a variety of interests—highly involved athletes are more closely tied to a subculture of sport and drinking, one which conditions their lifestyles and identities. In either case, we recommend further research to determine whether the initiation of binge drinking practices during the high school years presages the significantly higher rates of alcohol use among college athletes. After all, the most active high school athletes are often the ones who continue to play sports at the college level.

**Figure 3.3**  
**Alcohol Use (Males)**



**Figure 3.4**  
**Odds Ratios: Alcohol (Males)**



# Tobacco Use

According to the Centers for Disease Control and Prevention, tobacco use is the most preventable cause of premature death in the United States.<sup>25</sup> Although overall cigarette smoking rates have been on the decline, adolescents have been specifically targeted by tobacco advertising campaigns, with regrettably effective results. Almost all adult tobacco users started their habit as teenagers; today, smoking is an entrenched part of many teenage subcultures, with an estimated 3,000 teens taking up the habit each day. Of the approximately 3.1 million current adolescent smokers, nearly one-third say they started smoking at age twelve or younger.<sup>26</sup>

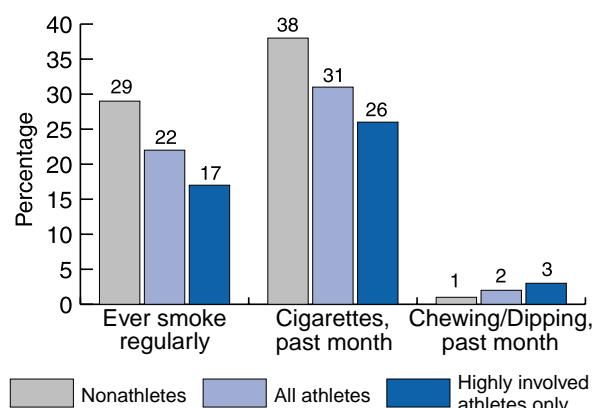
Chewing and dipping tobacco pose a major health risk. Males comprise 90% of the approximately 6.8 million Americans who use chewing and dipping tobacco, and about 20% of boys in grades 9 through 12 use these types of tobacco.<sup>27</sup> It is estimated that about 824,000 young people aged 11 to 19 years experiment with chewing and dipping tobacco each year, and about 340,000 eventually become regular users.<sup>28</sup> Finally, some studies have found that the use of chewing and dipping tobacco are more common among athletes than nonathletes.<sup>29</sup>

## Findings: The Girls

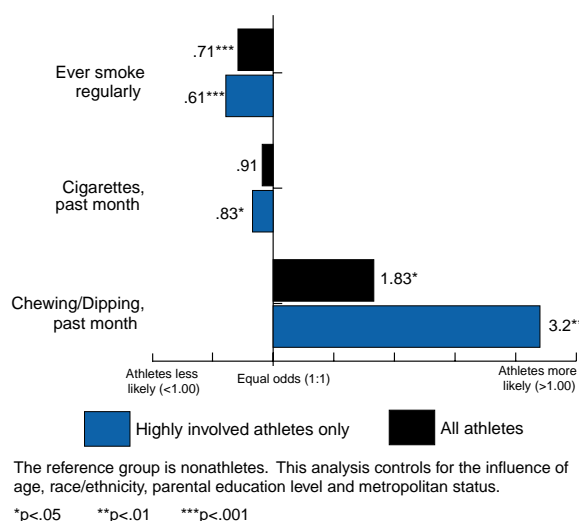
We found that a smaller proportion of female athletes than nonathletes had ever smoked cigarettes regularly; that is, “at least one cigarette every day for 30 days” (see Figure 4.1). While 29% (n=1016) of the female nonathletes had ever been regular smokers, only 22% (n=806) of athletes reported the same. The proportion of regular smokers among highly involved female athletes was even lower; only 17% (n=217). Recent smoking differed according to athletic involvement as well. Approximately 38% of nonathletes (n=1296), 31% of all athletes (n=1131), and just 26% (n=312) of highly involved athletes reported smoking within the past month. While athletic participation was associated with less cigarette smoking, the opposite was true for use of chewing and dipping tobacco. Very few high school girls reported using these substances overall, but differences by athletic status did emerge; 1% (n=41) of female nonathletes, 2% (n=68) of athletes overall, and 3% (n=33) of highly involved athletes had used chewing or dipping tobacco within the month prior to the survey.

These differences in the prevalence of tobacco use proved significant after we controlled for the potentially confounding influences of age, race/ethnicity, social class, and metropolitan status (see Figure 4.2). Female athletes were significantly less likely than nonathletes to have ever smoked regularly (OR=.71,  $p<.001$ ); highly involved female athletes were even less likely to have done so (OR=.61,  $p>.001$ ), or to have smoked within the past month (OR=.83,  $p>.05$ ). However, female athletes were nearly twice as likely as nonathletes to have used chewing and dipping tobacco recently (OR=1.83,  $p>.05$ ), and highly involved female athletes were more than three times as likely to have done so (OR=3.20,  $p<.001$ ). Though it must be kept in mind that very few girls chew or dip tobacco, athletes are clearly at greater risk.

**Figure 4.1**  
**Tobacco Use (Females)**



**Figure 4.2**  
**Odds Ratios: Tobacco (Females)**





## Findings: The Boys

Among the boys, we found that cigarette smoking was more prevalent among nonathletes than athletes (see Figure 4.3). More than one-third (35%) of male nonathletes ( $n=960$ ) had ever smoked regularly, compared to 19% ( $n=1148$ ) of athletes overall and 17% ( $n=447$ ) of highly involved athletes. Forty-five percent ( $n=1191$ ) of nonathletes had smoked within the past month; only 35% ( $n=1957$ ) of male athletes overall and 34% ( $n=825$ ) of highly involved athletes reported this behavior. Chewing and dipping tobacco usage patterns also resembled those of the girls, though substantially higher all around; 14% ( $n=379$ ) of male nonathletes, 17% ( $n=1012$ ) of athletes overall, and 19% ( $n=485$ ) of highly involved athletes had chewed or dipped tobacco within the past month.

Even after accounting for our control variables, these patterns remained (see Figure 4.4). Male athletes were less likely than nonathletes to have ever smoked cigarettes ( $OR=.64$ ,  $p<.001$ ), or to have smoked within the month prior to the survey ( $OR=.79$ ,  $p<.001$ ), and the difference in odds was even greater between highly involved athletes and nonathletes ( $OR=.58$ ,  $p<.001$  for ever having smoked;  $OR=.77$ ,  $p<.001$  for recent smoking). Playing sports was associated with a significantly greater chance of using smokeless tobacco for athletes overall ( $OR=1.41$ ,  $p<.001$ ) and especially for highly involved athletes ( $OR=1.64$ ,  $p<.001$ ).

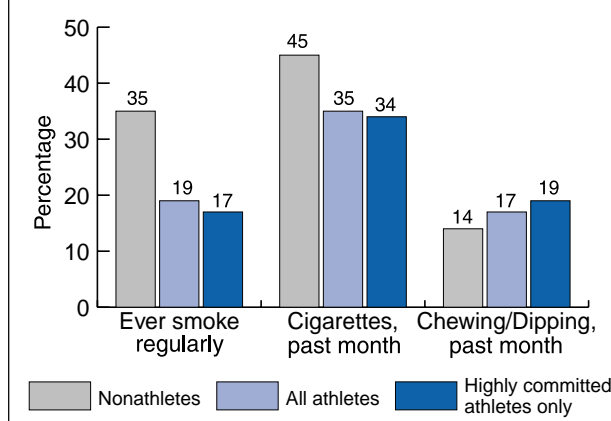
## Evaluation

First, it is clear that both genders do smoke cigarettes, and in higher numbers than the adult population. Though teenage girls sometimes use smoking as a tool for weight management,<sup>30</sup> the self-reports of high school students in the Youth Risk Behavior Survey suggest that more boys than girls use tobacco in both of its most common forms. This pattern is especially marked for chewing and dipping tobacco, a substance used by fewer than 2% of teenage girls overall.

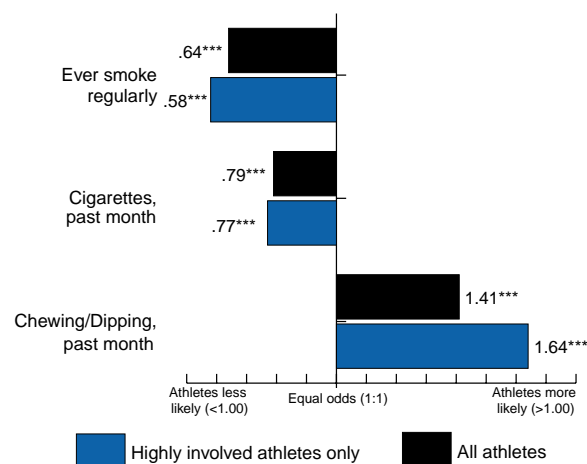
Second, the relationship between tobacco use and athletic participation is twofold. Athletes are less likely to smoke cigarettes, but more likely to use chewing and dipping tobacco than their nonathletic counterparts. Though apparently contradictory, these findings actually coincide with popular images of tobacco and sport. While the negative consequences of cigarette smoking include diminished lung capacity, an obvious disadvantage for the serious athlete, the negative health consequences of chewing/dipping tobacco are less immediately obvious on the playing field and, for some adolescents, may be outweighed by the desire to imitate those star athletes whose names and faces are routinely used to advertise this product.

Finally, the degree of sports involvement for tobacco use seems to be more important for girls than for boys. While the odds of tobacco use for highly involved male athletes were not much different from those for male athletes as a whole, the same could not be said for female athletes. Though further research is called for to explore this difference, we speculate at this juncture that, compared to male athletes, the number of sports teams on which female athletes participate may be a better measure of their genuine commitment to sports, and the degree to which their athletic status is a key part of their lifestyles and/or self-identities.

**Figure 4.3**  
**Tobacco Use (Males)**



**Figure 4.4**  
**Odds Ratios: Tobacco (Males)**



The reference group is nonathletes. This analysis controls for the influence of age, race/ethnicity, parental education level and metropolitan status.

\* $p<.05$  \*\* $p<.01$  \*\*\* $p<.001$

# Suicide

On average, a suicide occurs every seventeen minutes in the United States. Adolescents are particularly susceptible to thoughts and actions related to killing themselves. Suicide is the ninth-leading cause of death in the United States, but it is the third-leading cause among young people aged 15-24, killing more than 2,000 American teenagers every year.<sup>31</sup> Although girls attempt to kill themselves more often than boys, the latter are more apt to die in part because they generally use more lethal methods.<sup>32</sup> Though the best predictor of suicide is depression, research shows that alcohol and illicit drug use are also associated with greater risk for suicide among teenagers, as are conduct disorders such as getting in trouble with the law or experiencing school problems.<sup>33</sup>

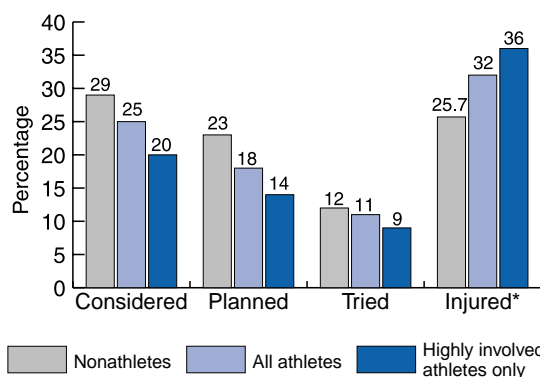
Little is known about the links between athletic participation and adolescent suicidal ideation and behavior, although most of the few existing studies point to risk-reducing effects of playing sports.<sup>34</sup> Since the Youth Risk Behavior Survey data consist of the self-reports of adolescents, obviously we could not study those who had successfully committed suicide. However, we did explore the relationships between athletic participation and considering suicide; planning suicide; attempting suicide; and, among those who did attempt, suffering resultant health consequences serious enough to require medical treatment.

## Findings: The Girls

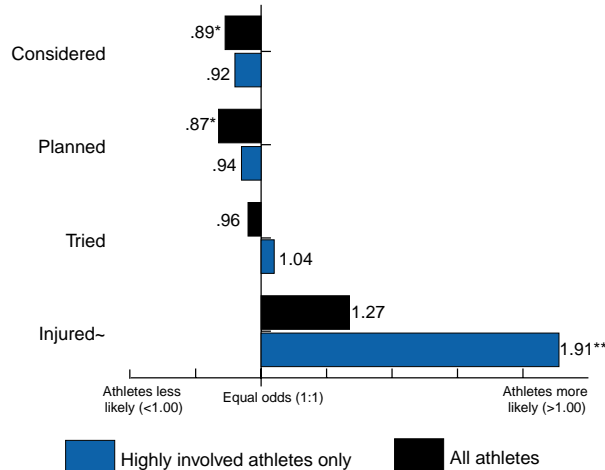
Our findings clearly point to lower rates of suicidal ideation among female athletes (see Figure 5.1). Twenty-nine percent (n=1041) of female nonathletes reported that they had “seriously considered suicide” within the past year, compared to 25% (n=923) of female athletes. Among the subset of female athletes whom we defined as “highly involved” (that is, those who had participated in three or more sports teams during the year prior to the survey), only 20% (253) had seriously considered killing themselves. The same pattern arose when respondents were asked about suicide plans: 23% (n=805) of nonathletes, 18% (n=654) of athletes, and 14% (n=180) of highly involved athletes had made a suicide plan. Over 12% (n=420) of nonathletes acknowledged having actually attempted to commit suicide during the past year, compared to 11% (n=376) of athletes and 9% of highly involved athletes (n=106).

A disturbing finding arose when we examined the reported outcomes of suicide attempts by teenaged girls. We found the 26% (n=107) of female nonathletes who attempted suicide had required treatment by a health professional as a result, compared with 32% (n=121) of athletes who did so. Among the highly involved athletes who tried to commit suicide, 36% (n=38) required medical treatment.

**Figure 5.1**  
**Suicide (Females)**



**Figure 5.2**  
**Odds Ratios: Suicide (Females)**



The reference group is nonathletes. This analysis controls for the influence of age, race/ethnicity, parental education level and metropolitan status.

\*p<.05    \*\*p<.01    \*\*\*p<.001

~Only respondents who reported attempting suicide are included in this question.

We calculated odds ratios for each level of suicidal thought and/or behavior for each adolescent subgroup (see Figure 5.2). Female athletes were indeed significantly less likely than nonathletes to have considered suicide ( $OR=.89, p<.05$ ) or made a suicide plan ( $OR=.87, p<.05$ ), though they were no less likely to actually try to kill themselves. Among those girls who had attempted suicide during the previous year, highly involved athletes were nearly twice as likely as nonathletes to have received medical treatment as a result ( $OR=1.91, p<.01$ ).

## Findings: The Boys

As expected, suicidal thoughts, plans, and attempts were less common among the boys than the girls. Only 20% (546) of male nonathletes reported seriously considering suicide (see Figure 5.3). An even smaller proportion of male athletes and highly involved male athletes reported the same: 13% ( $n=786$ ) and 11% ( $n=293$ ) respectively. About 15% ( $n=409$ ) of nonathletes went so far as to make a suicide plan, compared to 11% ( $n=661$ ) of athletes and 10% ( $n=268$ ) of highly involved athletes. Relatively few boys actually attempted suicide; 6% ( $n=144$ ) of nonathletes, 4% of athletes ( $n=223$ ), and 3% of highly involved athletes ( $n=82$ ) did so.

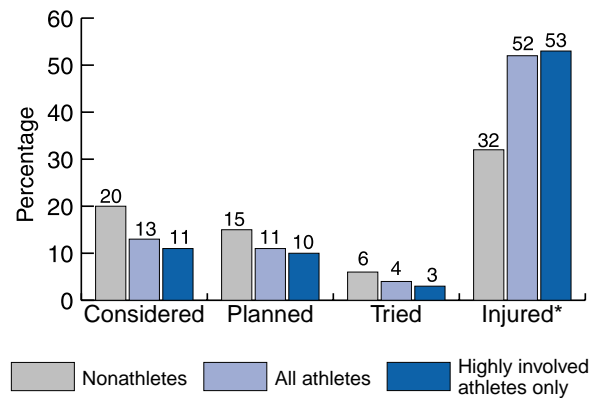
As with the girls, however, playing sports was associated with higher rates of injury among suicidal adolescent boys. Nearly a third (32%) of nonathletes ( $n=47$ ) who attempted suicide were injured badly enough in the attempt to require treatment; more than half (52%) of athletes ( $n=118$ ) and 53% ( $n=44$ ) of highly involved athletes were that seriously injured.

The calculation of odds ratios confirmed our expectations (see Figure 5.4). Male athletes were less likely than male nonathletes to consider suicide ( $OR=.76, p<.001$ ), make a suicide plan ( $OR=.80, p<.01$ ), or attempt to commit suicide ( $OR=.78, p<.05$ ). However, among adolescent males who actually attempted suicide, the highly involved athletes were nearly twice as likely as nonathletes to have required medical treatment as a result of their attempt ( $OR=1.89, p<.05$ ).

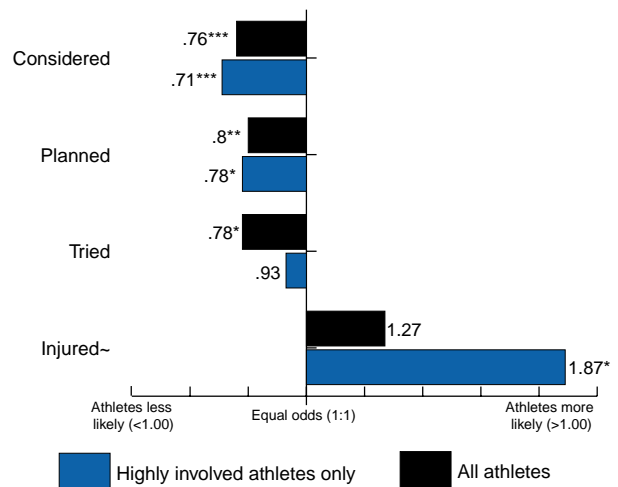
## Evaluation

This is the first systematic analysis of nationwide data to test for associations between high school athletic participation and adolescent suicide risk in the United States. We discovered evidence of lowered risk for suicidal ideation and suicide attempts, especially among male athletes. In no instances did athletes show a higher risk for suicidal thoughts and behavior than nonathletes. Though more research is needed in this area of adolescent health, the overall findings tend to support the conclusion that involvement with sports can help reduce the likelihood of suicide among many teenage girls and boys.

**Figure 5.3**  
**Suicide (Males)**



**Figure 5.4**  
**Odds Ratios: Suicide (Males)**



The reference group is nonathletes. This analysis controls for the influence of age, race/ethnicity, parental education level and metropolitan status.

\* $p<.05$     \*\* $p<.01$     \*\*\* $p<.001$

~Only respondents who reported attempting suicide are included in this question.

Less than 8% of teens in our study overall reported attempting suicide, and less than 3% were sufficiently injured in the attempt to require the care of a health professional. We are concerned about the finding that, among those adolescents in this study who did report trying to kill themselves, highly involved athletes of both sexes were almost twice as likely as nonathletes to have required medical treatment as a result. One possible explanation is that there may be aspects of the athletic setting that make it difficult for more involved athletes to seek help or, perhaps, to admit they are depressed or in need of help. Athletes are often taught to ignore or mask pain, injury, or emotional loss. Because playing sports inclines teens to be generally goal-directed, to be comfortable with aggressive behavior, and to “play through the pain” (push their bodies in spite of negative physical feedback), more highly involved athletes may be more likely to produce severe bodily harm during a suicide attempt.

Sports participation was associated with reduced risk among teenagers for suicidal ideas and attempts. However, because of the elevated risk for highly involved athletes who are suicidal to harm themselves seriously, their parents, coaches, and teachers need to be particularly alert to symptoms of suicidal proneness. It may also be that caring adults are less apt to recognize the psychological needs of highly involved athletes because they are seen as being strong, tough, and healthy. If an athlete is acting withdrawn or strange, others might read such behavior as a “slump” rather than as a genuine need for intervention. No symptom of suicidal thinking should be ignored or discounted.

# Body Image and Weight Loss

Ironically, at a time in history when more Americans are overweight than ever, advertisers and other representatives of popular culture promote an ideal body image (particularly for women) that is virtually impossible for most people to achieve. The imperative to live up to this unrealistic image has spawned a \$30-billion-a-year diet industry; over half of American women report being on a diet at any given time.<sup>35</sup>

Adolescents, most notably adolescent girls, are particularly susceptible to cultural messages about body image and weight loss.<sup>36</sup> Girls as young as five years old may be preoccupied with weight loss; and by the time they reach their teens, four out of five American girls have already dieted.<sup>37</sup> This national obsession with weight can have dangerous health consequences. Many girls and young women start and/or continue smoking for weight-related reasons; and some high school girls even consciously rule out birth control pills as a means of contraception because of the associated possibility of weight gain.<sup>38</sup>

Thousands of teenagers (mostly, but not exclusively, girls) suffer serious health consequences as a result of their weight management efforts. Though most do not fall victim to full-fledged eating disorders such as anorexia (starving oneself) or bulimia (compulsive bingeing and purging), many do engage in pathogenic weight loss methods such as fasting, using laxatives, self-induced vomiting, or using chemical diet aids in order to lose or maintain weight. These behaviors can result not only in excessive loss of weight, but also in severe dehydration, electrolyte disturbances, kidney damage, cardiac arrhythmias, and even death.<sup>39</sup>

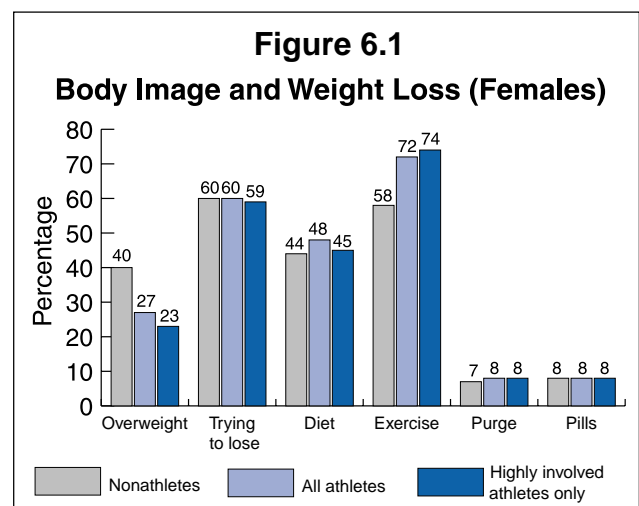
In 1989, the U.S. National Collegiate Athletic Association (NCAA) launched an intensive campaign to educate athletes, coaches, parents, and communities about eating disorders. This campaign underscores a body of research suggesting that female athletes, particularly those who participate in sports that emphasize appearance and/or leanness (such as gymnastics, skating, swimming, or distance running), are particularly at risk for pathogenic weight loss behaviors<sup>40</sup> and preoccupation with weight.<sup>41</sup> The President's Council on Physical Fitness and Sport estimates that between 10% and 20% of female athletes have eating disorders;<sup>42</sup> others suggest that, due to underreporting, the prevalence is probably substantially higher.<sup>43</sup> However, this research has largely been conducted on college-age populations.

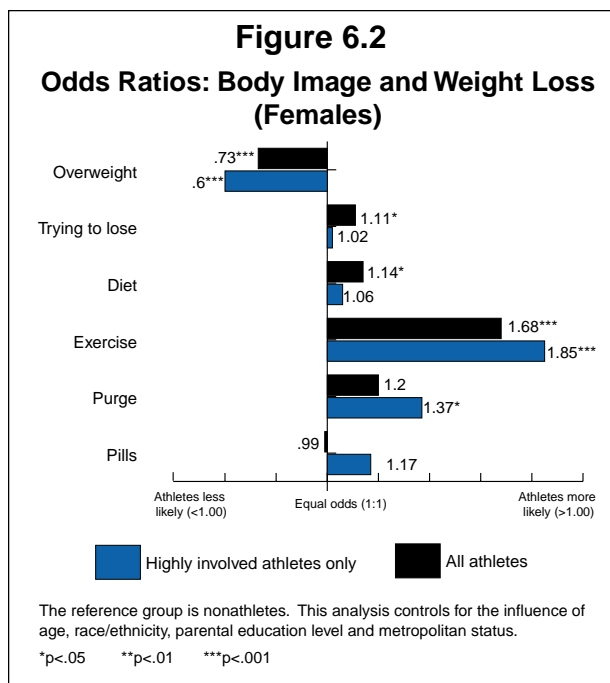
In this study, we examined reports of body image and weight-loss behavior for both female and male adolescents. Subjects were asked if they would describe themselves as overweight; if they were currently trying to lose weight; and what (if any) weight-management strategies they employed.

## Findings: The Girls

Our findings underscore the complicated nature of the relationships among athletic participation, body image, and weight loss behavior. Only about one-third (n=2453) of all female respondents in this study described themselves as overweight; however, three-fifths (n=4379) reported that they were currently attempting to lose weight. This odd gap between body image and behavior was particularly marked for athletes. Forty percent of nonathletes saw themselves as overweight, compared to 27% of athletes (and only 23% of highly involved athletes); however, the proportion of nonathletes, athletes, and highly involved athletes who sought to lose weight was approximately the same (60%).

We examined four strategies used by adolescents to lose weight within the month prior to the survey: exercising; dieting; purging (that is, inducing vomiting and/or using laxatives), and taking diet pills (see Figure 6.1). Not surprisingly, girls who did not play sports had substantially lower rates





(58%) of exercising to lose weight than those who did (72%). A higher proportion of athletes reported dieting to lose weight (48%, compared to 44% of nonathletes). These findings are promising, since they tend to indicate healthier strategies for weight management among athletes. However, with respect to the more clearly pathogenic strategies, the differences in reported frequencies between athletes and nonathletes were quite small (8% vs. 7% for vomiting/laxative use) or nonexistent (8% of both athletes and nonathletes used diet pills).

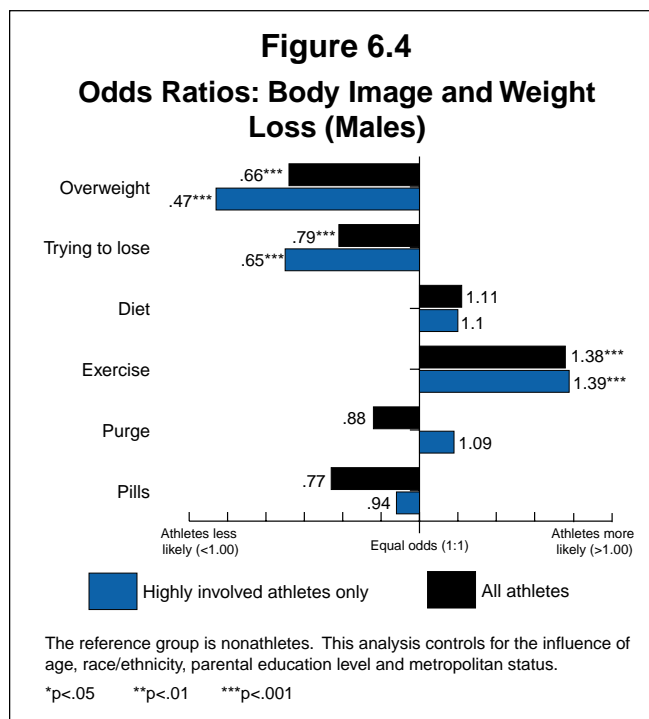
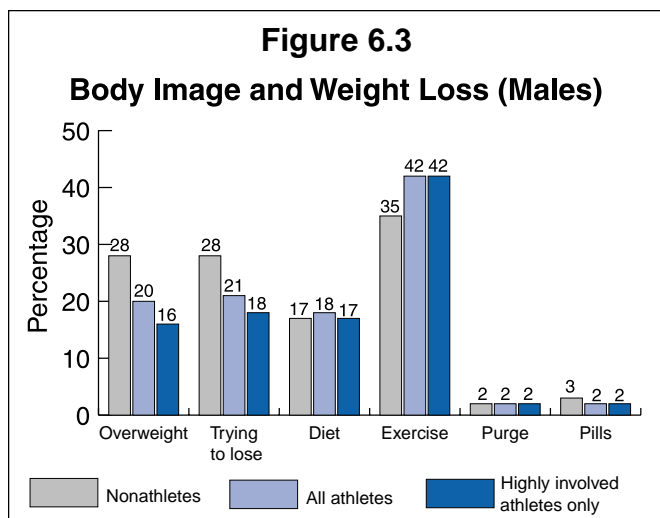
However, factors such as age, race/ethnicity, social class, and metropolitan status can affect both weight loss behavior and the decision to join or stay on a team. Figure 6.2 presents odds ratios for the above findings, which take into account these factors. In fact, female athletes' odds of describing themselves as overweight were lower than those of their nonathletic counterparts (OR=.73; p<.001), but significantly *higher* (OR=1.11; p<.05) when it came to actively attempting to lose weight.

Compared to their nonathletic counterparts, female athletes were two-thirds more likely (OR=1.68; p<.001) to report exercising as a means of losing weight (for highly involved athletes, OR=1.85; p<.001). Athletes also had higher odds

(OR=1.14; p<.05) of dieting than nonathletes. However, highly involved female athletes were more than a third more likely (OR=1.37; p<.05) to have engaged in self-induced vomiting or laxative use. There were no significant differences in the odds of diet pill use.

## Findings: The Boys

Findings for the boys were more straightforward. Figure 6.3 compares responses of male athletes and nonathletes. Among the boys, about 28% of nonathletes, 20% of athletes overall, and 16% of highly involved athletes considered themselves overweight. Unlike female respondents in the study, boys' self-images and behaviors closely coincided; that is, close to the same percentage (in each athlete status category) were actively trying to lose weight or viewed themselves as in need of such. Boys who participated in sports had higher rates of exercising to lose weight (42%, compared to 35%



of nonathletes), and were comparable to nonathletes in having dieted (17–18%), vomited/used laxatives for weight loss purposes (2%), or used diet pills (2–3%).

Finally, Figure 6.4 provides male athletes' odds of engaging in each of these behaviors, compared to male nonathletes' odds. Athletic participation was associated with lower odds (OR=.66;  $p<.001$ ) of considering oneself overweight, and of trying to lose weight (OR=.79;  $p<.001$ ). The differences in odds were even more marked for highly involved male athletes (OR=.47,  $p<.001$  for describing oneself as overweight; OR=.65,  $p<.001$  for trying to lose weight). Boys who played sports were also more than one-third more likely to have exercised to lose weight within the past month (OR=1.38;  $p<.001$ ). No significant athlete/nonathlete differences obtained in the odds of dieting, purging, or using diet pills.

## Evaluation

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These findings contain both good news and bad news for American teens, especially for girls struggling under the burden of unrealistic cultural expectations regarding weight and weight loss. They suggest that the flood of girls and young women moving into the sports milieu at the turn of the millennium are not doomed to unhealthy or even pathogenic weight loss behavior. Indeed, female athletes in this survey viewed their bodies more positively than nonathletes; and while they were more likely to try to lose weight, their chief mechanisms for doing so were the least immediately of the strategies available—exercising and dieting, rather than purging or using chemical aids. For boys, the message was quite positive; athletes are less likely to see themselves as overweight, less likely to feel the need to lose weight, and more likely to exercise as a means of reducing or maintaining their weight.

The disjuncture between body image and behavior for female athletes (and to a lesser extent nonathletes) remains a disturbing puzzle. Why are girls who claim to be satisfied with their weight nevertheless trying to reduce? This discrepancy could reflect in some cases a different weight standard on and off the field; what suffices for the nonathlete may differ from the more exacting standard of a coach.<sup>44</sup> It is also possible that girls who play sports are simply more proactive about their bodies.

However, it may be that the “diet culture” has so thoroughly infiltrated the social world of American adolescent girls that dissatisfaction is no longer a necessary spur to participation in weight reduction activities. If this is the case, then the influence of coaches and/or athletic directors may prove to play a key role. By the messages they send to their players, coaches may contribute to competitive thinness and pathogenic behavior among team members...or they may encourage the use of sport as a route to genuine physical fitness and an incentive to a healthy dietary regimen. Furthermore, weight is a poor measure of overall fitness and athleticism. It is important for coaches to be aware, and to make their athletes aware, that muscle is heavier than fat; therefore, athletes who attempt to conform to an artificially low body mass standard do so at greater relative cost to their health than less fit teenagers.<sup>45</sup>



# Vehicular Risk

Unintentional injuries are the leading cause of death for both females and males aged 15 to 19.<sup>46</sup> Automobile accidents were responsible for about 78% of the fatal injuries among this age group in 1995,<sup>47</sup> and many of these crashes were alcohol-related, especially among males.<sup>48</sup>

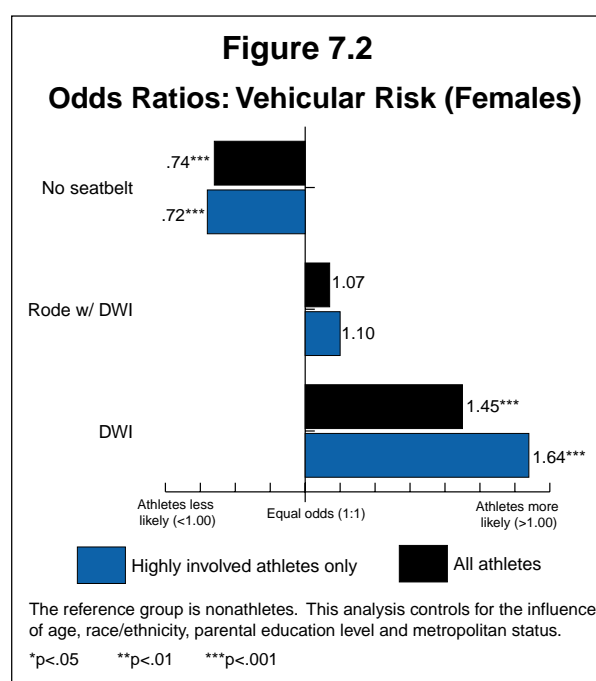
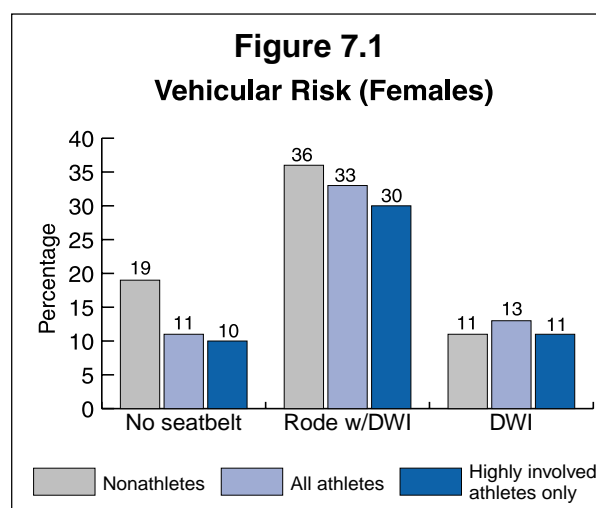
Gender influences a variety of adolescent health behaviors, including vehicular risk. Risky health behaviors may be more common when adolescents identify with traditionally masculine scripts that encourage suppression of emotions, toughness, aggression, and indifference to bodily injury and pain.<sup>49</sup> It has been suggested, for example, that some boys' efforts to appear tough may induce them to ignore speed limits or to drive recklessly as an act of bravado.<sup>50</sup> Taking chances becomes a way to earn or prove one's manhood. In contrast, girls have traditionally been taught to adopt conventional feminine scripts that emphasize passivity, being attractive to others, and playing it safe when it comes to adventure and risk taking. "Real men" take risks; "good girls" avoid them.

Some of the elements of the conventional masculine script, such as toughness, aggression, and taking risks, parallel the unwritten rules of sport. Therefore, logic suggests that girls who enter into the sport setting would be more likely to challenge some of the feminine prohibitions on risk taking. Though little research has been conducted to evaluate the association between athletic participation and chance-taking behind the wheel, there is some evidence to suggest that college athletes are less likely than nonathletes to wear seatbelts, more likely to drive while under the influence of alcohol or other drugs, and more likely to ride with a driver who is under the influence.<sup>51</sup> We hypothesized that the same negative relationship between athletic participation and motor vehicle safety would be true at the high school level, particularly for girls.

## Findings: The Girls

The data analysis yielded contradictory findings. More female nonathletes than athletes in fact reported seatbelt omission; 19% (n=658) of nonathletes but only 11% (n=404) of athletes and 10% (n=131) of highly involved athletes reported that they never or rarely wore seatbelts while riding in a car (see Figure 7.1). Furthermore, 37% (n=1297) of nonathletes reported riding in a vehicle driven by someone who had been drinking during the previous month, compared to 33% (n=1210) of athletes overall and 30% (n=375) of highly involved athletes. However, though the prevalence of driving after drinking differed little between nonathletes and athletes, a slightly higher percentage of athletes engaged in this risky behavior; 11% (n=403) of nonathletes and 13% (n=467) of athletes had driven a car after drinking alcohol in the month before the survey (see Figure 7.1).

After taking into account the influence of our control factors (age, etc.), we found that female athletes were less likely than nonathletes to report that they did not wear seatbelts regularly (OR=.74,  $p<.001$ ), as were highly involved athletes (OR=.72,  $p<.001$ ). There were no significant differences among these groups in the likelihood of riding in a vehicle operated by an

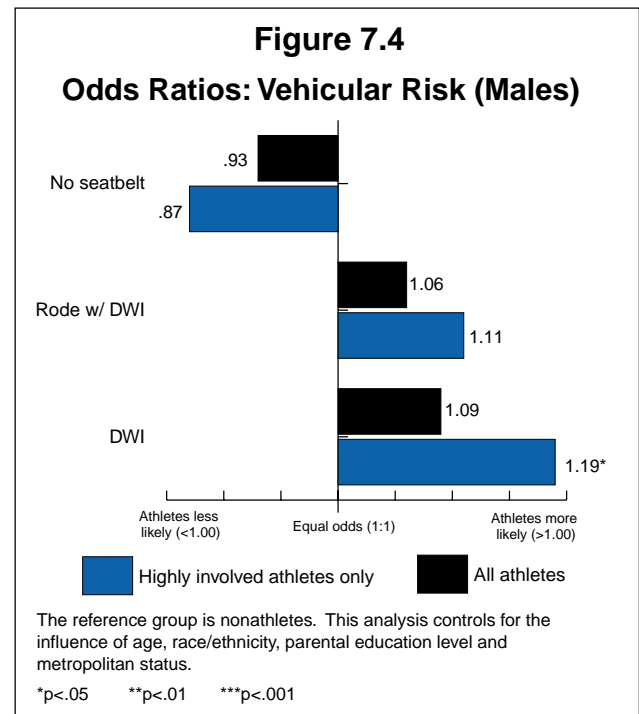
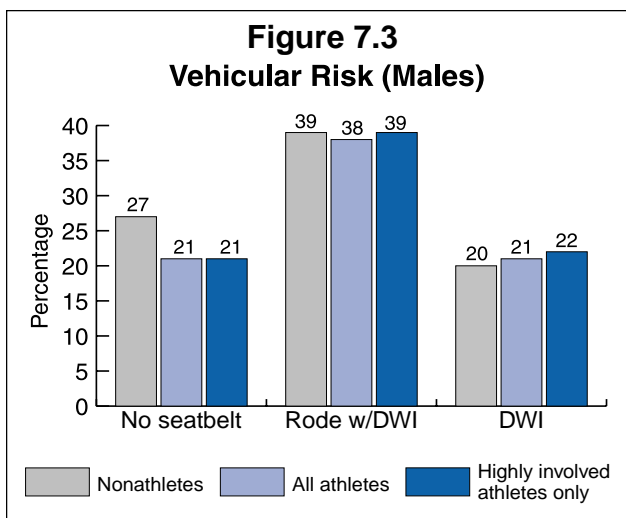


intoxicated driver; however, female athletes (OR=1.45,  $p<.001$ ) and highly involved athletes (OR=1.64,  $p<.001$ ) both had significantly greater odds of having driven a vehicle after drinking alcohol (see Figure 7.2).

## Findings: The Boys

As in the case of the girls, boys who play sports report less seatbelt omission, with only 21% ( $n=1285$ ) indicating that they never or rarely wear a seatbelt, compared to 27% of nonathletes ( $n=744$ ). Only small differences pertained with respect to motor vehicle safety and alcohol as well. Thirty-nine percent ( $n=1078$ ) of nonathletes and 38% ( $n=2276$ ) of athletes reported riding in a vehicle driven by someone who had been drinking; the percentages who had themselves driven after drinking were 20% ( $n=560$ ) and 21% ( $n=1263$ ), respectively (see Figure 7.3).

After controlling for race/ethnicity and other factors, there were no significant differences in the odds of wearing a seatbelt or riding with an intoxicated driver for male nonathletes and athletes (see Figure 7.4). Nor did the odds of driving after drinking differ significantly between the nonathletes and athletes. However, when nonathletes were compared with the subsample of highly involved athletes, the latter were somewhat more likely to drive under the influence of alcohol (OR=1.19,  $p<.05$ ).



## Evaluation

The findings show that female athletes take fewer chances when it comes to wearing seatbelts. They are also just as likely as their nonathletic counterparts to avoid riding with someone who has been drinking. However, the greater odds of driving after drinking for female athletes points to a potentially dangerous role that alcohol may play in some female high school athletic subcultures. It could also mean that, when intoxicated, female athletes are more likely to avoid self-protective or “feminine” behaviors and act out more “masculine” risk-taking scenarios.

In contrast, the pattern of vehicular risk among boys was largely unrelated to participation in sports. This does not mean that alcohol use or the pursuit of manly identity through risky behavior are not features of the high school male athletic culture. Rather, it could mean that substantial numbers of adolescent boys (athletes or not) buy into perceptions that “risk taking = manliness” and “booze = bravado.” Thus nonathletes and athletes alike engage in automobile-related health risk behaviors. Boys’ uniformly higher rates of seatbelt omission, drunk driving, and (to a lesser extent) riding with a drunk driver support this interpretation.

# Conclusion

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Perhaps the clearest message to be drawn from *The Women's Sports Foundation Report: Health Risks and the Teen Athlete* is that adolescent athletic participation wears two faces. Teens who play sports enjoy a health advantage over those who do not, in that they are less likely to smoke, use most illicit drugs, or be suicidal. However, they also face heightened odds of binge drinking, driving under the influence of alcohol, and use of steroids and smokeless tobacco. In fact, of the seven separate areas of health risk behaviors explored in this study, all but one yielded a combination of good news and bad news. The scales tip in either direction, depending on the nature of the specific health risk under scrutiny.

Athletic participation plays an important role in the lives of many American teenagers. Yet the complex and multifaceted nature of the relationship between sports participation and health risk behaviors at this crucial developmental period remains only dimly understood. What drives athletes to protect themselves from some negative health consequences and to dive headlong into others? Here are several promising explanations.

## Assimilation

Both athletic participation and risk-taking have traditionally been associated with cultural expectations about masculinity. Boys are often taught that “real men” take chances, both on and off the playing field. As girls move into this formerly masculine realm, they may be adopting some of the attitudes and behaviors once reserved for boys (and “tomboys”). Thus the greater girls’ involvement with sports activity, the greater the likelihood that they will engage in the health-risk behaviors that have popularly been considered hallmarks of masculinity.

## Social Bonds

It has been said that “idle hands are the devil’s workshop.” It may be that participation in sports reduces the likelihood of some risky behaviors because athletes’ time is more structured and better supervised than that of nonathletes. Athletes enjoy access to time and attention from coaches and other concerned adults who teach positive, healthy values, serve as positive role models, and offer guidance and advice regarding life choices that have potential health consequences.

## Sensation Seeking

An extensive body of research indicates that some people tend to be “sensation seekers;” that is, they are attracted to novel and varied experiences, and are willing to take chances in order to achieve them. Athletes are encouraged to take chances with their bodies, by diving for the ball or throwing themselves in front of the puck. They learn to play through the pain when necessary, leaving them perhaps less averse to taking other chances that involve physical risk.

## Professional Role Models

Teenagers tend to be keen observers of professional sports. Professional athletes are recruited by advertisers to promote various brands of alcohol and smokeless tobacco. The high-stakes, high-profit structure of national professional sports also tempts many pro athletes to sculpt their bodies and hone their skills through the use of steroids and performance-enhancing drugs. The health risks taken by adolescent athletes may reflect cultural messages that pervade professional sports today.

Which of these explanations is correct? Most likely, all of them play a role in shaping the lifestyle decisions made by American adolescents today. As this report suggests, athletic participation may be a valuable tool for parents, policymakers, and teenagers themselves to promote public health and the early establishment of life-long patterns of good health behavior. However, in the absence of a serious dialogue about the risky aspects of playing sports, athletes are also uniquely vulnerable to some of the very dangers health professionals seek to avoid.

We wish to offer several caveats about the research upon which this report is based. The results provide evidence for a relationship between athletic participation and health-risk behavior, but cannot prove that the relationship is causal. The findings of health-promoting behaviors among athletes, for example, may not be explained by sports involvement, but rather by a tendency for health-conscious adolescents to participate in

sports. The Youth Risk Behavior Survey, moreover, surveys students within the classroom, thus excluding not only home-schooled adolescents but also teens who have dropped out of school or are habitually absent—categories of adolescents who are at particularly high risk for the behaviors examined in this study. This study also does not explore in depth the differences between racial/ethnic or social class categories with respect to health risk behavior, although these factors were taken into account in our statistical analysis of odds ratios. Finally, no questionnaire—however detailed—can do full justice to the complex constellation of influences, motivations, and rationalizations that go into adolescents’ decisions to take chances or play it safe. This study addresses the behavior of adolescent athletes and nonathletes, but not the reasons for that behavior.

*The Women’s Sports Foundation Report: Health Risks and the Teen Athlete* sounds the call for further thought, careful research, and reasoned policy devoted to understanding how the enormous potential for sports to influence the lives of adolescents can be tapped in safe and health-affirming ways.

# Policy Recommendations

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The Women's Sports Foundation developed the following policy recommendations in order to promote the health of adolescent athletes, especially girls. Given the widespread interest and involvement of American teenagers, high school and community sport are appropriate social settings in which to plan and implement community health interventions. A panel of leaders from education, government, public health, women's health organizations, and sport was created to review the findings from this study and to identify policy goals. We gratefully acknowledge their expertise. The list of panel members and affiliations appears below. The *Women's Sports Foundation Report: Health Risks and the Teen Athlete* suggests that sport is a health asset in many young people's lives, fostering wellness and reducing certain risky behaviors. Yet some findings also point to areas where the sports experience may jeopardize the health of girls and boys. The policy recommendations below, therefore, discuss the preventive aspects of high school and community sports as well as areas in need of reform.

## Promoting Adolescent Health Through Sports

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### **1. Create Federal, State, and Local Policy and Action Agendas to Support Athletics.**

Educators and local, state, and federal policy officials need to evaluate the status of high school and community sports in their domains. Many school districts are experiencing the erosion of high school sports programs, a dwindling of public resources, and a decrease in athletic opportunities. In particular, poorer neighborhoods often lack the resources to support local teams.

- ~ Create a national policy for the protection and enhancement of high school and community sports in the United States of America.
- ~ Both public and private funds should be provided to promote health advocacy through sport.

### **2. Use Sport as a Gateway to Adolescent Wellness and Long-Term Health Promotion.**

Families, educators, parent-teacher associations, community organizations, and health professionals must evaluate and monitor the extent to which athletic programs protect and promote the health of teen athletes. Furthermore, the lifestyle choices and health habits that teenage athletes adopt affect their health later in life, promising not only better quality of life but significant savings in health care costs<sup>52</sup>.

- ~ Proponents of adolescent health should develop health-related educational materials specifically for athletes.
- ~ Public health departments should emphasize sport as an avenue to health (and thus as a strategy to lower cumulative health care costs).

### **3. Form New Partnerships to Pursue Health Advocacy through Sport.**

In order to foster adolescent health through sport, new partnerships should be forged between agencies, organizations, and institutions that are both governmental and nongovernmental, health-related and nonhealth-related, public and private.

- ~ Public health departments, schools and universities, medical centers, various sport organizations, coaches associations, and parent associations should work together to focus public attention on, and generate public and private funding for health advocacy through sport.
- ~ Women's health advocates and organizations, in particular, should explore policies and programs that seek to enhance girls' health through athletic participation.
- ~ Men's health researchers and advocates should do likewise for boys.

#### **4. Promote Gender Equity in Athletics.**

Historically, women's athletic participation rates mushroomed during the 1980s and 1990s, and sports are now central to many girls' and women's lifestyles. However, the lack of gender equity in many school athletic programs still deprives many girls of the opportunity to pursue wellness through sports participation. Athletic programs should be supported for interested girls as well as boys.

- ~ Title IX must be vigorously enforced at all levels of education.
- ~ Parents, coaches, and communities should monitor school and community athletic programs, and lobby their schools and local governments to enforce gender equity.
- ~ Lawyers, educators, epidemiologists, nurses, and school administrators can ensure that the current debates around gender equity in sports include a discussion of the ways that sports can promote greater levels of wellness in both girls and boys.

#### **5. Foster Working Relationships Between Coaches, Parents, and Health Professionals.**

Information about the health needs and risks of adolescents should be included in coaching certification and education programs. Workshops, published materials, and videos can help coaches and parents better understand the preventive potentials of athletic participation.

- ~ School districts, community-based athletic programs, and sports governance organizations should require that athletic directors, coaches, and athletic trainers learn to better assess the health risks of adolescent athletes.
- ~ Coaches and sports officials should work closely with school nurses, physicians, and counselors to form a network of knowledgeable adults upon whom athletes can rely for guidance, support, and intervention when needed.
- ~ Health professionals should establish dialogue with athletes and create workshops with coaches and parents, each of whom can offer valuable insights and recommendations drawn from their unique opportunities to observe and guide adolescent athletes.
- ~ Parent Teachers Associations, school boards, and community youth programs need to ensure that the education and health are the key organizing principles for developing and evaluating athletic programs.

#### **6. Welcome All Interested Adolescents into High School and Community Sports.**

In light of the potential health benefits associated with sport, school and community sports programs should not be reserved for only the best trained and most physically mature athletes. Sports should be made an inclusive and supportive environment for all girls and boys to develop physically, mentally, and socially.

- ~ The increasingly competitive focus of adolescent sports (as exemplified by the excessive practice of "cutting" children and adolescents from sports teams) should be de-emphasized.
- ~ School and community leaders must ensure that adolescent health is not compromised by cultural pressures to "win at all costs." Instead, the potential of sport to promote fitness and personal development should be exploited.

## **Reducing Health Risks In Adolescent Sports**

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### **1. Acknowledge the Existence of Health Risks.**

The first step to reducing the risk of behaviors with negative health consequences is to recognize the frequency with which they occur. This report has explored the prevalence and likelihood of a variety of health-risk behaviors in athletes, but much more research is needed. And more information is not enough; parents, policymakers, coaches, and athletes themselves need to talk frankly about the problems associated with adolescent sports before strategies can be crafted to resolve them.

### **2. Increase Efforts to Detect and Prevent Health Risk Behaviors.**

High schools should develop risk management procedures that allow school health officials, administrators, and coaches to identify and deal with problem behaviors among athletes. Such programs will be most effective when interested parties within and outside the school setting establish reliable lines of communication in order to coordinate efforts to promote teen health.

### **3. Provide Positive and Healthy Adult Role Models.**

Adolescent athletes learn by observation. Respected professional and college athletes can help to make sport a safer place for girls and boys by modeling substance-free lifestyles, responsible vehicular behavior, and nonviolence off the field, track, or court. In addition, they should refuse to advertise addictive substances. Both female and male professional athletes should be recruited to participate in public service advertising campaigns that link healthy lifestyles with sports. It is particularly important for coaches to act as positive role models for the teenagers whose lives they influence. Schools can also organize mentoring programs in which “team mentors” are used to promote the concept of healthy living through sports, and offer support and encouragement to teams.

### **4. Let Teens Help Each Other.**

Many adolescents are inclined to reject adult advice regarding health risks. In part because of this developmental tendency, teens are often strongly susceptible to peer pressure to engage in risky behavior. While parents and coaches can and should reach out to kids, teenage athletes can also be empowered by developing peer health education and support programs under the mantle of school and community sports organizations.

### **5. Challenge the Use of Sport Imagery to Sell Harmful Substances to Teens.**

Adolescent health advocates and proponents of high school and community sports should challenge the use of sports imagery to market dangerous substances to teenage audiences. For example, corporate advertisers regularly employ glamorous images of risk sports to sell tobacco and alcohol products. The symbolic masking of addicting drugs behind the facade of athletic excitement distorts many healthful sporting values while elevating the risk of adolescent experimentation. Sports magazines and television programming with substantial teen audiences should be encouraged to eliminate tobacco and alcohol advertisements.

### **6. Pay Close Attention When Depressed Athletes Talk About Suicide.**

Although participation in sports is associated with lower rates of considering, planning, or attempting suicide, those teen athletes who do try to kill themselves are more likely to cause serious bodily harm. No teen who expresses suicidal thoughts should be ignored, but athletes in particular should receive prompt intervention. Because athletes often grow close to their coaches and seek their advice on non-sport-related matters, coaches and health professionals can work together to supplement parental and school efforts along these lines.

## **Directions For Future Research**

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1. Most prior research, including this report, has provided only evidence of associations between athletic participation and adolescent health risks. More sophisticated longitudinal studies are needed to develop a clearer understanding of the causal mechanisms through which athletic participation influences adolescent health.
2. The organization and quality of high school and community athletic programs differ markedly from one another. Researchers should systematically evaluate how the quality and availability of athletic programs in their communities influence the health behaviors of teen athletes. This type of research is especially needed in communities where disproportionately high numbers of poor families are located.
3. Researchers need to be mindful of the unique needs and risks of girls and boys. Female and male teenage athletes share many of the same aspirations, values, physical challenges, and emotional ups and downs. Yet girls’ and boys’ experiences in sport often differ, producing unique consequences for physical and mental health.
4. Researchers should examine the extent to which some girls may be adopting health risk behaviors traditionally associated with some men’s sports, such as the use of chewing/dipping tobacco and binge drinking. Conversely, researchers need to explore the ways that the growing involvement of girls in sports may be changing boys’ health beliefs and practices.



5. It is likely that patterns of teenage alcohol use, illicit drug use, anabolic steroid use, and pathogenic weight loss behaviors vary from sport to sport and from setting to setting. Sport and health researchers need to document the risk-inducing and risk-reducing dimensions of various sports, and to compare the health consequences of participation in high school and community sports.
6. In-depth interviewing and focus group studies should be conducted to learn about the meanings and motivations that teen athletes attach to their daily decisions about risk-related health behaviors. Teen athletes should also be a part of the brainstorming process to develop strategies for reducing risky behavior.

## **Policy Advisory Panel Members**

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Will Courtenay, Ph.D., Founder and Principal, Men's Health Consulting, Berkeley, Calif.  
Rose Frisch, Ph.D., Professor, Harvard Center for Population Studies & Development  
Ellen Hart Pena, Member, President's Council on Physical Fitness & Sports  
Kathy Smith, President, Kathy Smith Lifestyles, Los Angeles, Calif.  
Mary Frances Stuck, Ph.D., Professor of Sociology, S.U.N.Y. at Oswego  
Marie Wilson, President, MS. Foundation, New York, N.Y.

# Appendix A: Methods & Analysis

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## Data

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Data for this report came from the 1997 national school-based Youth Risk Behavior Survey (YRBS). The Youth Risk Behavior Survey, conducted biennially by the Centers for Disease Control and Prevention, surveys public and private high school students nationwide regarding health-risk behaviors. The YRBS employed a three-stage cluster sample design to generate a nationally representative sample of U.S. high school students in grades 9 through 12. An 88-item questionnaire was administered in selected classrooms to students in schools chosen on the basis of degree of urbanization, racial/ethnic makeup, and size. African-American and Latino respondents were oversampled in order to facilitate hypothesis testing.

In the 1997 YRBS, a total of 16,262 questionnaires were completed in 151 schools. Eighty-seven percent of students responded from 79% of the schools invited to participate in the survey, for an overall response rate was 69%. Parental consent was obtained prior to administration of the survey.

## Measures

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Measures in this study were divided into three categories: the independent variable (athletic participation), dependent variables (health-risk behaviors), and control variables. All data discussed below, with the exception of metropolitan status, were collected through self-reporting by the high school students participating in the survey.

### Athletic Participation

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” (on any teams) and “did participate” (on one or more teams in or out of school). We also reasoned that the number of teams on which an athlete plays may serve as a proxy for degree of involvement in sports. Therefore, for comparison purposes, an alternate measure coded respondents as “nonathletes” (participated in no teams), “moderately involved athletes” (participated in one or two teams), and “highly involved athletes” (participated in three or more teams). Comparisons were made between nonathletes and highly involved athletes for some health-risk behaviors in this study.

### Health-risk Behaviors

We identified seven categories of health-risk behavior: illicit drug use; anabolic steroid use; alcohol use; tobacco use; suicide; body image and weight loss; and vehicular risk. Dichotomous (yes/no) measures were constructed for each of these categories.

#### Illicit Drug Use

Respondents were asked if they had ever used the following substances: marijuana; cocaine (any form, including powder, crack, or freebase); the crack or freebase forms of cocaine specifically; inhalants (defined as sniffing glue, breathing the contents of aerosol spray cans, or inhaling any paints or sprays to get high); or “any other type of illegal drug, such as LSD, PCP, ecstasy, mushrooms, speed, ice, or heroin.” Respondents also indicated whether they had used marijuana or cocaine during the month prior to the survey.

#### Anabolic Steroid Use

Respondents were asked if they had ever used steroid pills or shots without a doctor’s prescription.

## **Alcohol Use**

We constructed three measures of alcohol use. Respondents indicated whether they had ever had a drink of alcohol during their lifetimes; whether they had had at least one drink of alcohol during the past 30 days; and whether they had engaged in binge drinking during the past 30 days. In keeping with the extant literature on this subject, binge drinking was defined as “5 or more drinks of alcohol in a row...within a couple of hours.”

## **Tobacco Use**

Tobacco use included both cigarettes and chewing/dipping (smokeless) tobacco. Respondents were asked if they had ever smoked cigarettes regularly (at least one cigarette every day for 30 days); whether they had smoked any cigarettes in the month prior to the survey; and whether they had, in the past month, used chewing tobacco or snuff (such as Redman, Levi Garrett, Beechnut, Skoal, Skoal Bandits, or Copenhagen).

## **Suicide**

Respondents were asked if they had, within the past year, ever “seriously considered attempting suicide;” “made a plan about how you would attempt suicide;” and/or “actually attempted suicide.” Those who did attempt suicide were further asked if “any attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse.”

## **Body Image and Weight Loss**

Respondents were asked to describe their weight, with responses collapsed into two categories: “overweight” (slightly or very) and “not overweight” (including very or slightly underweight, or about the right weight). Respondents were also asked what they were “trying to do about your weight,” with response categories collapsed into either “lose weight” or “not lose weight” (the latter of which included “gain weight,” “stay the same weight,” and “not trying to do anything about my weight.” Finally, respondents were asked if during the 30 days prior to the survey, they had engaged in any or all of the following behaviors to lose weight or to keep from gaining weight: dieting; exercise; vomiting or taking laxatives; and taking diet pills.

## **Vehicular Risk**

Three measures of automobile-related risk-taking were constructed. Respondents were asked, “How often do you wear a seat belt when riding in a car driven by someone else?” with responses coded as “never/rarely” or “sometimes/most of the time/always.” Respondents also indicated whether, during the past 30 days, they had either driven a car or other vehicle when they had been drinking, or ridden in a car or other vehicle driven by someone who had been drinking.

## **Control Variables**

It has been established elsewhere that there are “selection effects” for athletic participation; that is, some categories of adolescents (such as non-Hispanic whites, younger teens, and teens from more affluent families) are more likely to be athletes than others (such as adolescents who are younger, poorer, or nonwhite). Therefore, in order to be certain that the health-risk differences we found between athletes and nonathletes were genuinely related to sports rather than these other characteristics, we included in our analyses controls for a set of demographic variables. Multivariate analyses in this study took into account the potential influences of the respondent’s age; race/ethnicity; social class; and metropolitan status.

Respondents reported how old they were, with responses ranging from “12 years old and younger” up to “18 years old or older.” They were asked to identify themselves as one of the following categories: “white—not Hispanic;” “black—not Hispanic;” “Hispanic or Latino;” “Asian or Pacific Islander;” “American Indian or Alaskan Native;” or “other.” Because of the small sample sizes for American Indians/Alaskan Natives (n=139), and the amorphous nature of the “other” category, controls were used only for the first four racial/ethnic categories listed above.

Since the Youth Risk Behavior Survey does not collect information about parental occupation or family/household income, we employed a proxy for social class: parental education. Respondents reported the highest level of education achieved by each of their parents, choosing from among five categories: “did not finish high school;” “graduated from high school;” “some education after high school;” “graduated from college;” and “not sure.” The parental education variable selected the highest educational achievement level known for either parent. Students who did not provide information about either parent’s education level, by reporting themselves “not sure” and/or by choosing not to answer these questions (n=1818), were excluded from the analysis because there was no way to control for the influence of social class in these cases.

Finally, we included metropolitan status as a control. This variable was not included in the self-report questionnaire taken by the students; rather, it was determined during the school selection process undertaken to create a nationally representative sample. Schools were classified as located with urban, suburban, or rural settings. Students at one school (n=108) for which the metropolitan status, on completion of sampling, was listed as “unknown” have been excluded from the analysis as well.

## Methodology

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Because of the strength of the selection effects that exist with respect to athletic participation, descriptive statistics (frequencies and percentages) which did not control for the demographic variables noted above were often misleading (see Table 1). Therefore, most of the findings in this report are expressed in terms of odds ratios.

We carried out logistic regression analyses (controlling for age, race/ethnicity, social class, and metropolitan status) to compare athletes’ and nonathletes’ odds of engaging in each health-risk behavior. Odds ratios were calculated for female and male adolescents separately, to estimate an athlete’s likelihood of an event (such as planning a suicide attempt, or driving after drinking) relative to a nonathlete’s likelihood of the same event. When a coin is tossed, the odds of it coming up heads relative to the odds of it coming up tails are 1:1 (mathematically, equal to 1). Therefore, an odds ratio (OR) of 1.00 is equivalent to a “toss-up.” That is, if OR=1.00, then an athlete and a nonathlete face the same odds of experiencing the event in question. An OR greater than 1.00 means that the athlete’s odds are greater than the nonathlete’s odds; an OR less than 1.00 means that the athlete’s odds are smaller than the nonathlete’s odds.

On the premise that degree of involvement in sports should be associated with different levels of risk-taking, odds ratios were also calculated to compare the likelihood of a health-risk behavior occurring to a highly involved athlete (three or more teams in the past year), relative to a nonathlete. Where these differed substantially from the odds ratios for athletes/nonathletes, they have been reported as well.

Odds ratios provide a more accurate picture of the relationships among athletic participation and health-risk behaviors than simple percentages do. However, it should be noted that when the percentages of athletes and nonathletes reporting a health risk behavior are low (e.g., 1% or 2%), the interpretation of odds ratios can be somewhat misleading. For example, if 1% of nonathletes engage in a risky behavior and 3% of the athletes engage in that behavior, an OR calculated from this difference (assuming controls have no net effect) would be 3.00. Although this means that athletes have three times as great a chance of engaging in that behavior, still the difference between groups is relatively small; more than 95% of both nonathlete and athlete groups do not engage in the risky behavior. This caveat should be kept in mind particularly with respect to girls who carry guns, chew or dip tobacco, and use steroids.

Only those findings that attained statistical significance ( $p < .05$ ) are included in this report.

**TABLE 1. Descriptive Statistics: Control Variables.**

	NONATHLETES (6366)*	ATHLETES (9711)	NONATHLETES		ATHLETES	
			FEMALE (3565)	MALE (2800)	FEMALE (3727)	MALE (5973)
Age (mean)	16.28	16.08	16.24	16.32	15.92	16.17
% (N)	% (N)	% (N)	% (N)	% (N)	% (N)	
<b>Race/Ethnicity</b>						
White	64.8 (3463)	75.1 (6544)	61.3 (1827)	69.2 (1636)	76.1 (2570)	74.4 (3966)
Black	16.4 (878)	12.4 (1083)	20.2 (602)	11.7 (276)	12.1 (408)	12.7 (675)
Latino/a	13.8 (739)	9.4 (815)	14.2 (422)	13.4 (317)	8.6 (290)	9.9 (525)
Asian/Pacific Islander	5.0 (266)	3.1 (274)	4.4 (131)	5.7 (135)	3.3 (110)	3.1 (164)
<b>Parental Education</b>						
Less than high school	10.0 (586)	4.7 (435)	11.3 (376)	8.2 (210)	5.9 (209)	4.0 (226)
High school graduate	20.7 (1217)	13.7 (1258)	21.8 (724)	19.3 (493)	15.4 (549)	12.6 (709)
Some education after high school	26.7 (1571)	21.7 (1997)	28.1 (934)	24.9 (637)	22.0 (784)	21.5 (1207)
College graduate	42.6 (2503)	59.9 (5501)	38.8 (1287)	47.6 (1216)	56.7 (2014)	61.9 (3482)
<b>Metropolitan Status</b>						
Urban	35.0 (2204)	32.4 (3076)	35.7 (1275)	34.1 (929)	28.2 (1050)	35.1 (2020)
Suburban	50.9 (3200)	53.0 (5029)	50.6 (1804)	51.2 (1396)	55.6 (2074)	51.3 (2951)
Rural	14.1 (887)	14.6 (1391)	13.7 (487)	14.7 (400)	16.2 (603)	13.7 (787)
* Some discrepancies in Ns exist due to weighting.						

# Endnotes

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