

Knowledge of AIDS and Risky Sexual Behaviors Among Athletes

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This research investigated sexual behaviors and AIDS knowledge for athletes and nonathletes. Nonathletes and athletes scored similarly on an AIDS knowledge test, but differed in reported risky sexual behavior. Athletes reported more behavioral changes after Magic Johnson's HIV-related retirement, but they still reported having more sexual partners per year than did nonathletes. The groups did not differ in condom use. By engaging in such risky behaviors, athletes may be more susceptible to sexually transmitted diseases like AIDS. Athletes (and nonathletes) continue to engage in unsafe sexual behaviors even while in possession of adequate knowledge of the risks. Implications for athletic counselors are discussed.

Acquired immunodeficiency syndrome (AIDS) (and HIV infection) is one of the most significant health risks in the world today. As scientists continue to learn about the disease, it is becoming increasingly clear that HIV transmission is not restricted to a few demographic groups (Hunt & Pujol, 1994). Because they engage in a greater amount of high-risk sexual behavior, some groups are more susceptible to infection than others. Researchers have examined AIDS-related knowledge and sexual behaviors in many different high-risk populations, including college students (e.g., Fisher & Misovitch, 1990; Hays & Hays, 1992; Walters, 1992), incarcerated adolescents and runaways (DiClemente, Lanier, Horan, & Lodico, 1991; Rotheram-Borus & Koopman, 1991), intravenous drug users (Selwyn, Feiner, Cox, Lipshultz, & Chohen, 1987), homosexual men (St. Lawrence, Hood, Brasfield, & Kelly, 1989; Wiktor & Biggar, 1990), and inner-city adolescents (Aruffo, Coverdale, & Vallbona, 1991; Goodman & Cohall, 1989).

As mentioned previously, college students have been determined to be a population at high risk for HIV infection (Ehde, Holm, & Robbins, 1995; Fennell, 1990). Attending college is often associated with increased independence and confidence; college students often take the opportunity to explore different behaviors and experiences (Walters, 1992), and sex is an important and common area of exploration. Because of the high social status given to athletes (see Balswick & Ingoldsby, 1982), college student-athletes may consider themselves more invincible than others and therefore engage in more high-risk behaviors (see Horvath & Zuckerman, 1992). Risky sexual behaviors may occur more often among ath-

letes, possibly due to a combination of high social status, feelings of invincibility, high sensation seeking behavior, and increased opportunity.

College student-athletes, then, should be considered another potential high-risk population for the transmission of HIV. The purpose of this paper is to examine AIDS knowledge and sexual behaviors among college student-athletes and nonathletes to determine if they have adequate knowledge about AIDS and HIV transmission, if the knowledge is being translated into lower-risk behaviors, and if student-athletes are at increased risk for HIV transmission.

Although several studies have been conducted on the sexuality and sexual attitudes of athletes (e.g., Garner & Smith, 1977; Heyman, Andersen, & Butki, 1996; Heyman, Varra, & Keahey, 1993), relatively little research has explored AIDS and athletes' sexual behaviors. With the recent HIV-related circumstances involving sport superstars such as Magic Johnson, Greg Louganis, Tommy Morrison, and the late Arthur Ashe, the topic of AIDS and HIV in sport has become increasingly prominent. The experiences of Johnson and others have led to increased AIDS awareness and knowledge among college students, adolescents, and other groups (Ehde et al., 1995; Sigelman, Miller, & Derenowski, 1993; Sumser, 1992).

Baldwin and Baldwin (1988) stated that "education is... the best line of defense against the spread of the acquired immune deficiency syndrome" (p. 181). If education is the key to prevention, as Baldwin and Baldwin claim, individuals with high levels of knowledge about AIDS should exhibit behaviors that are less risky. Social education programs based on this assumption have proven effective in increasing the level of AIDS knowledge in the general public (see Sweat & Levin, 1995), but increased knowledge often does not equate with behavioral changes. For example, Walters (1992) and Ehde et al. (1995) have reported that although the majority of college students exhibited a solid understanding of AIDS and HIV transmission, many students did not alter their behaviors and continued to engage in high-risk activities. This supports similar research on other populations (e.g., Fisher & Misovitch, 1990; Goodman & Cohall, 1989; Hays & Hays, 1992).

Appraisal of risk is an important consideration in examining reasons for whether or not behavioral changes occur. Relative to AIDS, many individuals seem to have adequate knowledge about the disease, including its transmission, effects, prevalence, and causes (Sweat & Levin, 1995). Nevertheless, a great many do not consider themselves to be at risk for contracting the disease even though they engage in risky behaviors. Perhaps these apparently paradoxical situations are a result of individual perceptions of invincibility or the common "it can't happen to me" attitude. This idea is supported by research examining behavioral differences between individuals who are personally acquainted with a person with AIDS or someone who was HIV-positive and those who are not (Gerbert, Sumser, & Maguire, 1991). Heyman et al. (1993) found that individuals who had a friend or family member with AIDS or HIV engaged in more behavioral changes than those individuals who did not personally know an AIDS or HIV-positive individual. Perhaps, as suggested by Ehde et al. (1995), the public announcements by Magic Johnson and Arthur Ashe—and more recently, diver Greg Louganis and

boxer Tommy Morrison—may serve as effective substitutes for personal acquaintances; athletes and others who identify with the superstars may have similar reactions to their favorite player's situation as they would to a related experience by a friend of family member.

This research examined the knowledge about AIDS and sexual behaviors in athletes and nonathletes. We hypothesized that, due to the availability of AIDS-oriented educational material, athletes and nonathletes would not differ on knowledge about the prevalence and transmission of HIV and AIDS and that both groups would score high on an AIDS knowledge test. Further, due to the increased awareness brought on by Magic Johnson's HIV-induced retirement from the NBA (Ehde et al., 1995; Sumser, 1992) and athletes' knowledge of and possible admiration for Magic Johnson, we expected athletes to report making more changes in their sexual behaviors than nonathletes. Finally, we believed that athletes who were personally acquainted with AIDS or HIV-infected individuals would score higher on AIDS knowledge and exhibit different (i.e., safer) behaviors.

Method

Participants

College students ($N = 381$) from introductory psychology and sociology courses at a rural university voluntarily participated in the study. Participants ranged in age from 18 to 54; the mean age was 20.52 years ($SD = 1.88$). Most were single ($n = 348$; 90%). The majority of the students were freshmen or sophomores ($n = 288$), and respondents were equally divided among males ($n = 189$) and females ($n = 192$). Nearly 90% of the respondents were Caucasian ($n = 342$), with the remaining 11% distributed between Black (4%), Hispanic (3%), Oriental (2%), and "other" (2%). All but one of the respondents described themselves as "exclusively heterosexual." Two thirds ($n = 251$) were currently sexually active or had been within the past year.

Respondents were classified as either athletes ($n = 246$) or nonathletes ($n = 135$). A student was classified as an athlete if he or she had participated in at least one varsity sport in college or during their junior or senior years in high school. The vast majority (92% of athletes) participated in at least two seasons, and most (55%) participated in more than one sport. There were 109 female athletes and 137 male athletes, as compared to 83 female nonathletes and 52 male nonathletes.

Questionnaires

Participants completed the AIDS Risk Behavior Knowledge Test (Kelly, St. Lawrence, Hood, & Brasfield, 1989) along with a demographic questionnaire and a survey examining their sexual behaviors. The 40-item knowledge test includes questions about the transmission, prevention, symptomatology, prevalence, and lethality of HIV and the AIDS virus. The inventory has been shown to have acceptable validity, and mean scores have ranged from 34.7 to 35.4 (SDs 2.4 to 2.7) (Ehde et al., 1995). The demographic questionnaire survey included items related to age, gender, academic major, year in school, ethnicity, sexual orientation, and athletic participation. The sexual behavior survey contained questions about fre-

quency of participation in certain sexual behaviors (e.g., vaginal and anal intercourse, oral sex), frequency of condom use, number of partners in the past year, perceived likelihood of contracting the AIDS virus, personal knowledge of AIDS or HIV-infected individuals, and behavioral changes resulting from Magic Johnson's HIV-induced retirement.

Procedures

In the spring of 1992 (after Magic Johnson's retirement), participants volunteered to participate in the project on one of five consecutive evenings. After a brief instruction period by the first or third author (e.g., "answer as honestly as possible" and "results will remain completely anonymous"), participants completed the demographic survey, the knowledge test, and the sexual behavior survey. Because the survey involved very intimate and personal subject matter, participants were encouraged to stop participation if they became uncomfortable with the survey. Fewer than ten respondents failed to complete the survey. Participants were well-spaced throughout the room, and responses were completely anonymous.

Results

In addition to common analysis of variance methods, effect sizes were calculated for the data. The effect size statistic (f) is similar to multiple R and is found by taking the square root of F and dividing it by the square root of n (the group sample size). By convention in the social sciences, .10 is a small effect size, .25 a medium effect size, and .40 is a large effect size (see Aron & Aron, 1994).

A 2 x 2 (Group x Gender) ANOVA on the AIDS knowledge test scores revealed that athletes and nonathletes did not differ on AIDS knowledge test results, $F(1, 378) = .91, p = .810$; both groups correctly answered over 85% of the questions. Because Goldman and Harlow (1993) found gender differences on measures of AIDS knowledge, risky behaviors, and perceived risk, gender was included as a variable of interest. Females ($M = 36.90$) scored significantly higher than males ($M = 35.13$) on the knowledge test, $F(1, 379) = 4.88, p < .05$ ($f = .16$, small-to-medium effect size). There were no significant interaction effects.

Results of a separate ANOVA with only the 251 respondents who were sexually active revealed that athletes were no more likely than nonathletes to use condoms, $F(1, 248) = 1.40, p = .24$. Both athletes and nonathletes reported using condoms less than half of the time, and less than 30% of the respondents in both groups reported using condoms all the time. In rating their likelihood of contracting HIV, the groups reported no differences; neither group rated their likelihood of contracting AIDS or the HIV virus higher than 5%.

Nearly 70% ($n = 171$) of the 246 athletes were sexually active. Nonathletes were less likely to be sexually active; less than 60% of nonathletes ($n = 80$) reported being sexually active within the past year. A 2 x 2 (Group x Gender) ANOVA revealed that athletes nonetheless reported engaging in sexual activities more often per month, $F(1, 379) = 14.73, p < .001$ ($f = .24$, medium effect size); and having more sexual partners in the previous year than nonathletes, $F(1, 379) = 9.70, p < .001$ ($f = .20$, a low-medium effect size). Males (athletes and nonathletes

together) reported having more sexual partners than did females, $F(1, 379) = 11.19, p < .001$ ($f = .24$). There was a significant interaction effect, as male athletes reported far more sexual partners per year ($M = 2.81$) than did female athletes ($M = 0.98$) or male ($M = 1.59$) and female ($M = 0.76$) nonathletes.

Less than 5% of the respondents reported being personally acquainted with an AIDS or HIV-infected individual ($n = 16$). Therefore, analyses examining group differences (those who know an infected individual versus those who do not) should be interpreted with caution. No differences were found on AIDS knowledge test scores, number of partners, or frequency of condom use between these two groups.

Discussion

Many of the effect sizes found in the above analyses fall into the "small" to "medium" range, which may seem unimpressive by conventional standards, but because of the lethality of HIV and AIDS, even small effect sizes reveal important findings. The medium effect sizes reported in this research should be considered practically significant. The population from which the data involved in this research was gathered needs discussion. The sample was taken from a rural American population, and the results may not generalize to other groups. Further, because all but one respondent described themselves as "exclusively heterosexual," the results must be interpreted with caution. The nearly exclusive heterosexuality of the sample may be due to the conservative nature of the geographical region of the country from which the data were gathered. Very few participants reported being personally acquainted with an HIV-infected individuals or persons with AIDS. These numbers are extremely low, and the results presented in this research would probably be different in a more urban area. The population from which this sample was drawn probably is at lower risk for AIDS than most other populations. Nonetheless, the results are still interesting because they may reflect the beliefs of a large group of American youth.

It is also important to discuss the definition of "student-athletes" used in the study. The athlete group included both high school and college varsity sport participants, which leads to wide within-group variance in actual amount of sport participation. Although this variance may lead to increased potential generalizability of the results, it may in fact be a limitation to the study. Sports play an important role in rural American life, and most of the athletes in this study had extensive organized sport experience. The results should be interpreted with this consideration in mind.

Athletes and nonathletes scored very high on the AIDS knowledge test, suggesting that students may have adequate knowledge about AIDS prevalence, symptomatology, and transmission. This supports previous research (see Fennell, 1990; Hays & Hays, 1992) and provides further evidence that AIDS education programs have been effective in providing critical knowledge about the disease. Many people believe that the key to AIDS prevention is education (see Walters, 1992). If an individual understands the facts about AIDS, including the gravity of the disease and potential transmission routes, then that individual will make be-

havioral changes to become safer. Because the students in this study exhibited adequate knowledge about AIDS, yet still engaged in risky behaviors, the results of this study fail to support this notion.

Athletes seem to be at even greater risk than nonathletes. Both groups scored highly on the AIDS knowledge test, but athletes were more likely to be sexually active, engage in sexual activity more often, and have more sexual partners than nonathletes. Further, athletes were no more likely to use condoms than nonathletes. These behaviors put athletes at greater risk for contracting AIDS and other sexually transmitted diseases. As Bandura (1990) explained, education is only the first step in a multistage process of behavior change with regard to AIDS. While the AIDS knowledge level of athletes seems to be adequate, many athletes have not yet initiated behavioral change in accord with their knowledge.

These results support previous research that has found that knowledge is not a valid predictor of sexual behavior (Ehde et al., 1995; Hays & Hays, 1992; Walters, 1992). Despite their knowledge about potentially dangerous activities, athletes (and nonathletes) continue to engage in risky behavior. Further, they seem to consider themselves to be at very low risk for contracting HIV. Perhaps this is due in part to the perceived remoteness of the disease. The old adage of "out of sight, out of mind" seems appropriate, especially among the rural population sampled here. Very few of the respondents were personally acquainted with a person with AIDS or HIV, and they did not seem to consider AIDS a possibility for themselves.

When Magic Johnson made his announcement about his HIV status, many experts hoped that something positive could result (Gellert, Weismuller, Higgins, & Maxwell, 1992; Kalichman & Hunter, 1992). Many hoped that the announcement would serve as the catalyst to spark a movement toward safer sexual behaviors. Unfortunately, this does not seem to have been the case. Even though the athletes in the present study reported making changes in response to Magic's announcement, the changes seem to have been small and insignificant, and athletes continue to engage in more dangerous behaviors than do nonathletes. Well-known figures like Magic Johnson do not seem to serve as effective surrogate acquaintances in bringing about behavioral changes. This supports previous research (Sumser, 1992) and emphasizes the need for individualized approaches to AIDS education.

One of the biggest hurdles to sexual behavior changes relative to AIDS seems to be the perceived remoteness of the disease. With a few major exceptions, the disease has not yet made an impact on the athletic community, especially in rural settings like that of the present study. The results show that students, in general, do not perceive themselves to be at a high risk of contracting HIV. Therefore, athletes—who generally exhibit greater attitudes of invincibility and are more likely to engage in high-risk behavior than nonathletes (Anshel, 1994)—may need special attention with AIDS education. On the playing field or court, athletes are encouraged to be aggressive and take risks. In the community, they are often treated as celebrities. As a result, their everyday behaviors and attitudes are likely to be different from those of nonathletes.

Athletic counseling interventions should focus on increasing the athletes' perceived susceptibility, which should effectively increase their desire and will-

ingness to alter their behaviors. The current fact-based education programs are effective in providing information, but situation- and experience-based programs such as case examples and individual testimonials may be more effective in promoting behavioral change. Athletes need to be made aware of the actual risk associated with unprotected sexual behaviors. These risks do not stop with HIV and AIDS: Hepatitis B and other sexually-transmitted diseases also pose serious health risks in college populations.

The situations and experiences of Magic Johnson, Greg Louganis, Tommy Morrison and Arthur Ashe may provide the initial push towards effective intervention, but further work is necessary to promote healthier behavior. Athletic counselors could help to increase athletes' knowledge of the situation by using the highly publicized cases to represent the many unknown individuals with AIDS. Perhaps by focusing on the high-profile individuals who are HIV-positive (especially among the often-admired elite athletes discussed above), counselors can help to increase student-athletes' perceptions of susceptibility. Also, seeking out HIV-positive school or team alumni to serve as speakers may be another effective method of increasing student-athletes' perceived risk. For example, Greg Louganis has been a guest on university campuses speaking about AIDS, the pressures of being an international athlete, and being gay (Sobczyk, 1996). Such programs may help to increase student awareness about the realities of AIDS.

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Steven R. Heyman was a professor in the Department of Psychology at the University of Wyoming at the time of his death in 1993. Dr. Heyman began working on this project with the first author when he was killed in 1993. We completed the project and are presenting it as we feel he would have wanted. We trust that he would have approved of our efforts.

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