Eating Disorders in Female College Athletes: Risk Factors, Prevention, and Treatment

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Female athletes are at risk for developing eating disorders because of the pressures that are placed on them by society, their peers, their coaches, and the sports culture itself. This paper reviews the literature on the risk factors involved and various methods of prevention and treatment. The authors conclude that individual and group approaches are most effective when they utilize the sports culture to change attitudes and behaviors.

Eating disorders have become a problem on many college campuses (Holston & Cashwell, 2000), with as many as one-third of college women engaging in some kind of disordered eating behavior (Grigg, Bowman & Redman, 1996; Joiner & Kashubeck, 1996). Eating disorders are usually associated with a fear of gaining weight and excessive emphasis on body shape and weight. One of the most common eating disorders is anorexia nervosa, which is characterized by self-starvation and a distorted perception of body size and/or shape. Individuals affected by anorexia nervosa are generally secretive and exhibit a steady decline in body weight. Physical symptoms include fatigue, low blood sugar, thinning hair, slowed metabolic rate, and in severe cases, an absence of regular menstruation, bone loss, a weakened heart, and even death. Depressive symptoms such as withdrawal, irritability, and insomnia are also exhibited. Individuals with anorexia nervosa are often in denial about their condition or lack insight into the problem. Another common eating disorder is bulimia nervosa in which individuals consume a large amount of food and then compensate by vomiting, using laxatives or diuretics, fasting, or exercising excessively. The physical symptoms include dehydration, vitamin and mineral deficiencies, bad breath, damage to vital organs, and blisters in the throat. There are rare, but potentially fatal complications, such as esophageal tears, gastric rupture, and cardiac arrhythmias. Depressive symptoms or mood disorders are common, as well as anxiety and substance abuse (American Psychiatric Association, 1994).

Those who are most at risk of developing eating disorders are Caucasian, middle-to-upper class educated populations in developed countries (LoBuono, 2001). They may exhibit perfectionism, obsessive compulsive behavior, social withdrawal, depression, and high achievement (Seidenfeld & Rickert, 2001).

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Although anorexia nervosa can occur in men, nearly 90% of the cases have occurred in women (DSM-IV, 1994). Likewise, Bulimia is less common in men, but occurs in 1% - 3% of young women (DSM-IV, 1994). One study of female college students showed that 14% had binged and purged at least once in their lives (Kashubeck, Marchand-Martella, Neal, & Larsen, 1997). Another study showed 61% of college women reported behaviors characteristic of eating disorders and 20% acknowledged some type of eating disorder (Levitt, 2004).

There is some evidence that participation in athletics, especially weight-dependent and competitive sports, increases an individual's likelihood of developing an eating disorder (Beals, Brey, & Gonyou, 1999; DiBartolo & Shaffer, 2002; Kirk, Singh, & Getz, 2001; Picard, 1999). Some researchers (e.g. Berry & Howe, 2000; Kirk et al, 2001) have argued that female athletes are at particular risk for eating disorders because of the sports culture and the pressures they place on themselves, but the results of empirical studies comparing female athletes and non-athletes have been inconclusive (Kirk et al, 2001). Kirk et al. found no differences between female athletes and non-athletes, however two other studies showed female athletes to have lower incidences of eating disorders than non-athletes (Reiking & Alexander, 2005; Sanford-Martens, Davidson, Yakushko, Martens, Hinton, & Beck, 2005). A study by Hopkins & Lock (2004) demonstrated higher perfectionism and eating disorders among athletes than non-athletes. Similarly, Johnson et al. (2004) showed that female athletes scored lower than other groups on self-esteem and higher on measures of disordered eating. All of the literature reviewed indicates the incidence of eating disorders is low in male athletes (e.g., Hopkins & Lock, 2004; Johnson, C. et al., 2004; Sanford-Martens, et al., 2005).

Since much of the literature on eating disorders among athletes is about women, and there is some evidence they are more at risk for developing an eating disorder than non-athletes or male athletes, this manuscript reviews the literature on the risk factors which can lead to disordered eating among female athletes, prevention strategies, and treatments. The following key words were used to search the ERIC and PsycINFO databases for the years 1990-2005: female, athletes, college, and eating disorders.

Risk Factors for Developing an Eating Disorder

Social Pressure

Athletes experience strong pressure to be thin because of cultural expectations about body weight and beliefs about the weight that is optimal for athletic performance (Stoutjesdyk & Jevne, 1993). In fact, body dissatisfaction and drive for thinness are the best predictors of eating disorders in college women (Cooke-Cottone & Phelps, 2003). Interminable exposure to thin yet muscular female models in the media is the major reason women perceive themselves as

fat (Beals, 2000; Wertheim, Paxton, Schutz, & Muir, 1997). Athletes are particularly at risk because they are in a sports milieu that overvalues performance, low body fat, and an idealized body shape, size, and weight (Krane, Stiles-Shipley, & Waldron, 2001; National Eating Disorders Association, 2000). As a whole, athletes embody the societal ideal of a thin, trim build, but the more their body deviates from the ideal for a particular sport, the greater the risk they will develop an eating disorder (Berry & Howe, 2000).

Harmful attitudes toward being fat among athletes are reinforced by coaches, parents, and peers (Lo, Hebert, & McClean, 2003; Stoutjesdyk & Jevne, 1993). A study by Berry and Howe (2000) showed that concerns about body image and pressure from coaches and peers were significant predictors of restrained eating. According to Berry and Howe, most athletes view their coaches as parents who always know what is best for them and tell them the truth, especially when providing information about diet and health. A significant number of the athletes who dieted to improve their performance had been told by their coach to lose weight.

Pressure from teammates regarding body weight and performance can also contribute to disordered eating. In a study by Hausenblas and Carron (2000), approximately 30% of the female athletes reported that the peer group influenced their eating behaviors and 10% reported that the group had a negative influence on their eating behaviors. The authors also documented that teammates encourage pathological weight loss methods, such as the use of laxatives, diet pills, diuretics, and/or self-induced vomiting. Furthermore, the onset of disordered eating resulted from competition between teammates to lose weight, the competitive nature of the sports, and the belief that a certain weight is optimal for performance.

Personality Characteristics

If the pressure to lose weight or perform better does not come from the sports environment, it tends to come from within the athlete. Athletes strive to succeed and may believe they must be perfect. The very characteristics that drive them to be good athletes may be factors that lead to the development of an eating disorder (Sherman & Thompson, 2001).

Athletes tend to exemplify several personality characteristics commonly seen in individuals with eating disorders (Picard, 1999). These characteristics include high self-expectations, competitiveness, perfectionism, compulsiveness, drive, self-motivation, and extreme pressure to be slim and perform well (Engel, Johnson, & Powers, 2003). In addition, athletes in sports that emphasize being thin may exhibit self-discipline, denial, and control, all of which have been recognized as risk factors for both anorexia and bulimia (Lo, Hebert, & McClean, 2003; Picard, 1999). There are similarities between athletes and non-

athletes with eating disorders on traits such as high self-expectations, rigid and obsessive approaches to reaching goals, perfectionism, and emotional control (Stoutjesdyk & Jevne, 1993). One study (Petrie & Rodgers, 2001) found that athletes who are at risk for eating disorders exercise excessively to improve their performance, deny pain or discomfort so they don't have to sit out of competition or practice, comply completely with coaches and trainers' requests, and pursue and accept nothing short of perfection. Unfortunately, those are the same characteristics that put them at risk for eating disorders.

Another key personality trait that may cause a higher risk of eating disorders is low self-esteem. Various clinicians report that patients with eating disorders are often perfectionists or people pleasers or have very poor self-esteem (Amara & Cerrato, 1996). Success in a sport may be one way athletes can compensate for low self-esteem, but if they engage in disordered eating behaviors in order to be successful in their sport, they may actually decrease their self-esteem. Those who develop eating disorders tend to obsess about food and being fat and experience an emotional roller coaster of depression, shame, disgust, anxiety, and even euphoria (Collins, Collins, & Montgomery, 1998).

Biological Factors

Sherman and Thompson (2001) theorized that eating disorders occur only in athletes who are predisposed to disorders through a combination of personality, family, socio-cultural, and biological factors, but this theory has not been tested. There is evidence that strenuous exercise suppresses appetite, which leads to a decline in food intake and subsequent reduction in body weight. This initiates the anorexic cycle (Beals, 2001). In addition, gender, early onset of menarche, and the propensity toward obesity may exacerbate the occurrence of eating disorders (O'Dea & Abraham, 1999).

Recommendations for Prevention

The literature suggests that those athletes who display sub-clinical symptoms of eating disorders can be helped through early detection and intervention (Beals & Monroe, 2000), while those with a full clinical diagnosis may require therapy (Sherman & Thompson, 2001). Early identification, prevention programs, and understanding the role of coaches are important issues student affairs practitioners must understand to assist those with eating disorders.

Early Identification

Prevention of eating disorders among athletes is an important first step in reducing the incidence of the problem; however, there are different levels of prevention that must be considered. Primary prevention is used when individuals do not have any type of eating disorder. The aim is to keep new cases from arising. Secondary prevention involves the detection and treatment of an eating disorder in a person at the early stages of the illness in order to

reduce the duration of the illness. Efforts should be taken to evaluate which athletes would benefit from primary prevention and which would benefit from secondary prevention methods (Beals et al, 1999; Mann et al., 1997).

Early identification of sub-clinical disordered eating is one of the best ways to prevent a full-blown eating disorder. Beals and Monroe (2000) found that early identification of disordered eating is important for three reasons. First, research has established that many cases of anorexia nervosa and bulimia nervosa began as sub-clinical variants of these disorders and early identification may prevent the development of a clinical eating disorder. Second, the rate of recovery is thought to be directly related to the severity of the disorder, therefore early detection allows treatment to proceed more quickly. Third, severe energy restriction combined with high levels of physical activity places athletes at risk for a number of health problems including chronic fatigue, compromised immune function, poor or delayed healing, amino electrolyte imbalances, endocrine abnormalities, menstrual dysfunction, and decreased bone density.

Prevention Programs

Prevention programs are intended primarily for individuals who exhibit normal eating, exercise, and weight management behaviors, but who may be susceptible to the development of dysfunctional behavior (Beals et al., 1999; Schweitzer, Bergholz, Dore, & Salami, 1998). Since athletes may be at high risk because of both environmental pressure and personal characteristics, prevention programs need to focus on changing both environmental and individual determinants of eating disorders. The goal should be to increase understanding, change attitudes, and promote healthy behavior. Any attempts to prevent eating disorders must address the following environmental issues: (a) how culture affects body image; (b) cultural obsession with slenderness as a physical, psychological, and moral issue; and (c) the distorted meaning of femininity in today's society. Issues of self-esteem and self-respect must be included, as well as information about set point theory (the body's attempt to maintain a certain weight), reasons why most diets do not work, and information about nutrition (Abood & Black, 2000; National Eating Disorders Association, 2000; Sesan, 1989). According to the National Eating Disorders Association (2000), programs will fail if they concentrate solely on warning parents and athletes about the signs, symptoms, and dangers of eating disorders.

Prevention programs are most successful when a group format is used because they can take advantage of the positive influences that teammates have on each other, encourage positive group norms (Beals et al, 1999; Hausenblas & Carron, 2000), and occur in natural settings (Schwitzer, et al., 1998). A group format is particularly effective with sub-clinical individuals because they are more willing to talk about their feelings and behaviors than individuals with

clinical eating disorders (Holt & Espelage, 2002). A potential hazard of doing prevention programs in a group format is that it may inadvertently increase student knowledge of dieting, vomiting, and laxative abuse if the sessions are conducted by individuals who are recovering from an eating disorder (O'Dea & Maloney, 2000). Workshops and brief group formats that emphasize psychoeducational issues, cognitive interventions, and skill development can be conducted during normal practice times to ensure the greatest participation from all team members without major adjustments to schedules.

There is some evidence that one-shot prevention programs and those that present factual information are ineffective (Martz & Bazzini, 1999; Phelps, Dempsey, et al., 1999). One-shot programs may cause potentially harmful outcomes, including glamorizing the disorders so individuals accept them as normal behavior (O'Dea & Maloney, 2000). O'Dea and Mahoney recommended a comprehensive approach that engages health and education officials, students, parents, community leaders, and coaches. Neumark-Sztainer (1996) advocated a program which includes outreach to peers, families, and the community, as well as modification of the social and physical school environment

The Role of Coaches

Prevention of eating disorders is highly dependent upon the attitudes and approaches of the team coach. Coaches can play a key role in the prevention of eating disorders, but they must understand the symptoms and types of eating disorders, the dangerous physiological effects of eating disorders, the impact of weight intensive sports on the body, and the effect of their coaching expectations on female athletes' body image and relationship to food. If coaches observe any signs of eating disorders, they should address those immediately with the individuals and the team. Since the key element in any athlete's training is the balance of exercise and proper caloric intake (Mosley, 1997), the best way coaches can prevent eating disorders is to focus on healthy eating habits and appropriate exercise, instead of emphasizing dieting (Rhea, Jambor, & Wiginton, 1996). They must also recognize the detrimental effects that derogatory statements or misguided advice can have on athletes (Rhea, Jambor, & Wiginton, 1996). They need to explore their own values and attitudes about weight, weight control, dieting, and body image and how those values and attitudes are communicated to their players (Sesan, 1989). Finally, coaches need to be aware that every athlete has certain genetic distinctions and individual limitations. In order to prevent disordered eating, they should de-emphasize body weight, eliminate group weigh-ins, and discourage pathogenic weight loss techniques (Rhea et al., 1996).

Recommendations for Treatment

Counseling

Since issues of self-concept and body image are prevalent among individuals with eating disorders, counseling is one of the main types of treatment. Cognitive therapy alone may be effective for body acceptance and cognitive therapy in combination with cognitive behavioral therapy is effective for self-concept. A combination of behavioral techniques and cognitive techniques is purported to be more powerful than either alone (Dworkin & Kerr, 1987).

The goal of cognitive therapy is to help patients recognize connections between their dysfunctional thoughts and maladaptive behaviors; to critically evaluate their attitudes and beliefs about weight and eating; and to substitute more reasonable interpretations for dysfunctional ones (Beaum'ont, Russsell, & Touyz., 1993). Another goal of cognitive therapy is to overcome unhealthy, repetitive dieting and replace it with a more normal pattern of eating. The techniques in cognitive therapy confront women's beliefs and force them to analyze, evaluate, and change them. Clients are given homework assignments to continue this process on their own (Dworkin & Kerr, 1987).

In contrast, cognitive behavioral therapy emphasizes both cognitive and behavioral factors in the maintenance of an eating disorder (Garner & Garfinkel, 1997). The major components of this approach are establishing good rapport with the athlete and encouraging the athlete to monitor what he or she eats. The following techniques may be utilized: (a) weighing only once a week; (b) educating the athlete about weight and eating; (c) prescribing regular eating patterns; (d) eliminating dieting, improving problem solving skills; and (e) cognitive restructuring. Studies of bulimics have shown that dieting is reduced when these techniques are used and the amount of food eaten between bulimic episodes is increased. Attitudes toward body shape and weight also improve (Wilson & Fairburn, 1993).

Cognitive therapy and cognitive behavioral therapy are not the only options for treating eating disorders. Other options include individual counseling, referral for nutritional education and/or counseling, and referral to a peer counselor for education about eating disorders (Sesan, 1989). Insight-oriented therapy may also be useful to encourage expression of feelings and tolerance of uncertainty and change, to promote a realistic appraisal of personal strengths and weaknesses, to help with separation and individuation, and to provide a secure relationship that allows the individual to develop independently (Beaumont et al., 1993). Counselors can also help women develop effective problem-solving skills or transfer already existing skills to problematic situations (Holt & Espelage, 2002).

Although many of the counseling and educational approaches are used to treat anyone with eating disorders, counselors who work with athletes must understand and appreciate the importance of sports in the life of serious athletes, as well as understand the unique pressures and risk factors in the athletic environment. A counselor's task is to discover whether an athlete feels pressure to lose weight or body fat and to determine the source of the pressure (Sherman & Thompson, 2001). The goal of treatment would be the same for athletes and non-athletes – to gain back lost weight and learn new ways of thinking about food and themselves (Beaumont et al., 1993).

Counselors who are inexperienced in working with athletes may not be familiar with the role that sport plays in an athlete's life and may recommend the athlete gives up the sport and competition. In most cases, the sport is a major part of the athletes' lives and the primary or only source of self-esteem, so athletes who are asked to give up sports usually feel the counselor has dismissed or discounted its importance. Athletes report that they do not feel the counselor has taken them seriously, and they drop out of treatment. Since they are already ambivalent about treatment, asking athletes to give up their sport creates even more doubt (Sherman & Thompson, 2001).

Often athletes think that weighing less leads to better performance and that weighing more than the ideal competitive weight will lead to poorer performance. Counselors need to assure athletes that any increased performance obtained through weight loss tends to be offset by the psychological turmoil associated with the process and that better nutrition and health will improve performance. An athlete who is properly nourished and hydrated and who is not depressed and obsessed with food and weight usually outperforms one who is not (Sherman & Thompson, 2001).

One issue which arises when athletes are undergoing treatment is whether they should continue to practice. Many recommend they remain involved if competing does not compromise their health or interfere with treatment. Treatment and health must always be the number one priority (Petrie & Rogers, 2001). If athletes choose to practice and compete, they must adhere to a list of health maintenance criteria determined and monitored by the health care professionals involved in their treatment (Sherman & Thompson, 2001). These criteria include cooperation with treatment, reasonable progress in treatment, maintenance of at least 90% of expected weight, and ingestion of calories sufficient to maintain this weight. If they do not meet these terms, athletic participation should be withdrawn. Participation can also depend on the diagnosis of the athlete (Petrie & Rogers, 2001). Athletes can participate if medically cleared to do so, if their diagnosis is not anorexia nervosa, if their disordered eating is unrelated to their sport, and if they are in treatment. If there is a diagnosis of anorexia nervosa, they should not exercise, train, practice or compete. They need to know that their health will not be secondary to their

athletics. Consideration needs to be given to how an athlete's absence is going to be explained to teammates and the media. The athlete must be involved and feel in control of any information that is shared concerning his or her condition (Petrie & Rodgers, 2001).

Nearly all athletes can be motivated to recover by being allowed to participate and compete. Studies have shown that when participation is withdrawn or withheld, most athletes work hard in treatment to regain their privileges. Being a part of a team can be a motivating factor. Being away from teammates may create a sense of loss, so it is recommended they be allowed to attend team practices and meetings to maintain their sense of attachment and belonging (Sherman & Thompson, 2001).

It is imperative that counselors spend time in the sports world and talk with athletes and coaches. They need to be present at competitions, or better still attend practices. This type of involvement provides the counselor with an opportunity to experience the sports world and begin to build relationships with local coaches and sports management personnel (Sherman & Thompson, 2001).

Sport Management Teams

Since the sports culture is a significant part of the problem, it is recommended that a team approach be utilized to prevent and treat eating disorders among athletes (Baer et al., 1995; Sherman & Thompson, 2001). Persons within the athletic environment who are involved with athletes, such as coaches, athletic trainers, and health care professionals can be used to make up a sports management team. The health care professionals should include a psychologist or counselor, physician, and a dietitian. Athletic trainers should be involved because their primary focus is with the health of the athletes and they are often the first persons to identify medical and psychological problems. They usually know their athletes better than other sports management personnel and are often the people to whom athletes turn when a problem arises. It is an excellent idea to have coaches involved so the leader can have some awareness of and control over their strong influence (Sherman & Thompson, 2001) and to ensure the coach is supportive, both verbally and through his or her actions (Petrie & Rogers, 2001). Most importantly, the dietician helps the athletes establish an eating plan and monitors their progress in that regard (Sherman & Thompson). The entire team should be concerned with the holistic well being of the athlete, not just whether the athlete is performing to the best of his or her ability.

A counselor or student affairs professional should lead the team and make sure that several ethical guidelines are followed. Most importantly, participation by athletes must be therapeutic (Sherman & Thompson, 2001). Confidentiality must be clearly explained to the athletes, mainly about how communication

may occur among the members of the team (Petrie & Rogers, 2001). The athletes must consent to the involvement of each team member and efforts should be made to keep in touch with the family, irrespective of the student's age and with the student's consent (Beaumont et al., 1993).

Conclusions and Discussion

Limitations of the Study

Although this literature review revealed a number of important points about eating disorders in female athletes, it is important to recognize the limitations in the literature. First, there is still disagreement about whether female athletes are more at risk than other students. In fact, there is some evidence that they may eat better than most students as a result of being involved in sports (Reiking & Alexander, 2005; Sanford-Martens, Davidson, Yakushko, Martens, Hinton, & Beck, 2005). Second, there is some empirical data on the extent of the problem, but very little data on the effectiveness of prevention and treatment programs. Third, variations exist depending upon the age, ethnicity, genetic make up, and other individual characteristics of the athletes, as well as the type of sport. Therefore, it is difficult to generalize these findings to all situations.

Conclusions

In order to tackle the problem of eating disorders among female athletes, it is important to understand why this population is at high risk for developing eating disorders and then take a comprehensive approach to combating the problem. Although athletes share many of the same risk factors as non-athletes, the demands in the sports world are different from the demands in the non-sports world. More emphasis is placed on being thin and conforming to a particular body image in competitive sports. Pressure to attain this ideal comes from coaches, peers, and society. In addition, many athletes exhibit personality characteristics, such as perfectionism, compulsiveness, and emotional control, which are risk factors for developing eating disorders. Since the very characteristics which make them high achieving athletes are the same characteristics which make them at risk for developing eating disorders, primary prevention is critical.

One way to combat the problem of eating disorders is to prevent them before they develop into clinical cases. The first step in this process is to identify sub-clinical cases or individuals who are most at risk. This may be difficult given the secretiveness and denial associated with the diseases, but early intervention is critical to effectively treat eating disorders and to reduce long-term physiological damage. Prevention programs should address both the environmental and individual causes of the disorders. The programs should address the tough issues of how society defines body image and femininity,

how the sports culture promotes eating disorders, and how individual competitiveness, self-esteem, and perfectionism contribute to the problem. Healthy lifestyles and nutrition need to be stressed. Prevention programs that are held in conjunction with practice and involve the entire team will be most effective at addressing group norms. The effectiveness of these programs can be enhanced by using the cultural norms of the team and the influence of the coaches.

The attitude of coaches is critical to the process of early intervention, prevention, and treatment of eating disorders. Coaches need to be able to recognize the signs of eating disorders, recognize how the messages they send contribute to the problem, and make a commitment to promote nutrition and balance. It is imperative that they realize the serious ramifications of athletes competing with compromised health, damaged vital organs, or heart problems. Since they have so much influence over athletes, they are in a prime position to make a difference.

Prevention techniques are of limited value once an individual has developed an eating disorder. Depending upon the severity of the disorder, individuals are commonly treated with cognitive and behavioral counseling techniques that focus on issues of self-esteem and unhealthy eating behaviors. They may also be referred for nutritional counseling. The literature suggests that counselors who work with athletes should become a part of the sports culture, but this may not be realistic. At a minimum, however, they need to understand the importance of the sport to the athlete's self-concept and healthy recovery and decide the extent to which the athlete should be allowed to continue participation. Often athletes are motivated to recover when they can participate and get support from the team, but they should not be allowed to compete if it would be detrimental to their health.

The creation of sports management teams is a newer approach which is more holistic and which utilizes various members of the sports culture, including coaches, trainers, and health care professionals. It can be used for either prevention or treatment. One of the advantages of this approach is that it is an integrated part of the sports program and is supported by the coaching staff.

Preventing and treating eating disorders in any population is not an easy task. These are complex diseases which are caused by a combination of social pressures and personal characteristics. Furthermore, the denial and secretiveness associated with the diseases makes it difficult to recognize the early stages and even more difficult to convince an individual to seek help. Given the nature of the sports world, it seems that the most effective ways to decrease eating disorders among athletes is to utilize the team culture and implement the following components into a comprehensive program: (a) recognition of the signs and early intervention; (b) prevention techniques that

address both individual and environmental risk factors; (c) treatment plans that consider the importance of participation in the sport for self-esteem and motivation; (d) prevention and treatment programs which are supported by the coaches; and (e) holistic approaches lead by teams of experts in health, mental health, and athletics. Obviously, it is best to prevent the diseases before they start in order to avoid serious physical and psychological problems, but prevention would also be the most cost effective approach when resources are short.

Recommendations for Research

Since the research on prevention and treatment of eating disorders is limited, we recommend the following: (a) Empirical studies comparing the effectiveness of prevention and treatment programs; (b) Research on the effectiveness of various approaches with different groups of athletes (men and women, ethnic minorities, and athletes in different sports); and (c) Qualitative studies of athletes, coaches, and the sports culture to further identify the complexities of this problem.

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