Health-Risk Behaviors Among High School Athletes and Preventive Services Provided During Sports Physicals

Karen E. Johnson, PhD, RN, & Annie-Laurie McRee, DrPH

ABSTRACT

Introduction: Preparticipation examinations (PPEs), or sports physicals, present opportunities for health care providers to identify and discuss common adolescent health-risk behaviors. We sought to examine the prevalence of health-risk behaviors among high school athletes and the proportion of providers who address these behaviors during PPEs.

Method: For this descriptive study we used data from two statewide surveys: a survey of adolescents (n = 46,492) and a survey of nurse practitioners and physicians (n = 561).

Results: The most prevalent risk behaviors reported by student athletes were low levels of physical activity (70%), bullying perpetration (41%), and alcohol use (41%). Most providers (≥75%) addressed many common risk behaviors during PPEs but fewer addressed bullying, violence, and prescription drug use. Topics discussed differed by provider type and patient population.

Discussion: Many providers addressed critical threats to adolescent health during PPEs, but findings suggest potential disconnects between topics addressed during PPEs and behaviors of athletes. J Pediatr Health Care. (2015) *29*, 17-27.

KEY WORDS

Adolescent, sports, risk behavior, preventive services, health education

Karen E. Johnson, Assistant Professor, School of Nursing, The University of Texas at Austin, Austin, TX.

Annie-Laurie McRee, Assistant Professor, Division of Health Behavior and Health Promotion, College of Public Health, The Ohio State University, Columbus, OH.

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Correspondence: Karen E. Johnson, PhD, RN, School of Nursing, The University of Texas at Austin, 1710 Red River St, Austin, TX 78701; e-mail: kjohnson@mail.nur.utexas.edu.

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Nearly 60% of high school students in the United States played school sports in 2011 (Eaton et al., 2012). Athletes in all 50 states are required to undergo a preparticipation examination (PPE), also known as a sports physical, before they can participate in high school sports (Kurz, Herrera, & Gotlin, 2008; Sanders, Blackburn, & Boucher, 2013). The PPE is typically delivered in one of two ways: individually in a private, office-based setting with the adolescent's primary care provider or in a group-based setting, such as a high school gymnasium, with a team of providers who are not part of the adolescent's primary care team (Sanders et al., 2013). The primary purpose of the PPE is to ensure the health and safety of athletes by ruling out medical contraindications to participation, such as risk factors for sudden cardiac death (Kurz et al., 2008; Sanders et al., 2013).

Many persons criticize the PPE for being an ineffective and inefficient screening process because of the very low incidence of sudden cardiac death and lack of standardized screening protocols (Best, 2004;

Carek & Mainous, 2002; Reich, 2000; Sanders et al., 2013; Wingfield, Matheson, & Meeuwisse, 2004). The risk of sudden cardiac death among children and adolescents is 1 in 200,000 (Beckerman, Wang, & Hlatky, 2004; Carek & Mainous, 1997), and risk factors for sudden cardiac death are prevalent in only 500 out of 200,000 (< 1%) of high school athletes (Carek & Mainous, 1997; Corrado et al., 2011).

Screening and intervening to prevent a single, devastating, and untimely death is certainly worthwhile for the few who are at risk. Yet other objectives can be incorporated into the PPE to better serve the needs of all adolescents and improve the cost-benefit ratio of the PPE (Carek & Futrell, 1999; Kurz et al., 2008). Specifically, PPEs present a golden opportunity to screen and counsel patients about health-risk behaviors that are common during adolescence (Best, 2004; Carek & Futrell, 1999; Harris & Anderson, 2010), particularly because the PPE may be the only contact an adolescent has with a health care provider during the year (Sanders et al., 2013). Several national organizations, including the American Academy of Pediatrics (AAP) and National Association of Pediatric Nurse Practitioners (NAPNAP), point to the important role that health care providers can play through offering guidance to adolescent patients about risk behaviors (American Medical Association, 1997; Bernhardt & Roberts, 2010; Hagan, Shaw, & Duncan, 2008; Harris & Anderson, 2010; NAPNAP, 2009). Indeed, research suggests that such preventive counseling has the potential to have a positive impact on adolescent behavior, such as increases in the use of seat belts and helmets and decreases in tobacco use (Ozer et al., 2011). Given the millions of adolescents who play sports, the PPE is an important part of many pediatric practices and can serve as an additional—if not the only—opportunity that providers may have to address health-risk behaviors with adolescent athletes. This is especially true of younger adolescents and males, who participate in high school sports most frequently.

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Behaviors such as substance use, violence, and high-risk sex pose a substantially greater risk to health and well-being during adolescence than does sudden cardiac death. Nationwide in 2011, 33% of U.S. high school students had been in a physical fight and 20% had been bullied; 34% were sexually active, 40% did not use a condom at last intercourse, and 15% reported having four or more sexual partners in their lifetime (Eaton et al., 2012). In the month preceding the 2011 Youth Risk Behavior Survey, nearly 40% of students reporting drinking alcohol and 23% used marijuana (Eaton et al., 2012).

Evidence suggests that sports team participation protects against some health-risk behaviors during adolescence, but not others (Taliaferro, Rienzo, & Donovan, 2010). For example, high school athletes are 25% to 36% less likely than nonathletes to smoke cigarettes (Castrucci, Gerlach, Kaufman, & Orleans, 2004; Melnick, Miller, Sabo, Farrell, & Barnes, 2001) but are more likely than nonathletes to report alcohol use and binge drinking (Denham, 2011; Terry-McElrath, O'Malley, & Johnston, 2011; Taliaferro et al., 2010). Sex differences exist for sexual risk-taking behaviors; for example, female athletes are consistently less likely than female nonathletes to be sexually active, have unprotected sex, and have multiple partners (Lehman & Koener, 2004; Miller, Sabo, Farrell, Barnes, & Melnick, 1998; Taliaferro et al., 2010). Conversely, male athletes are more likely than male nonathletes to be sexually active (Pate, Trost, Levin, & Dowda, 2000; Taliaferro et al., 2010).

Despite the enormous potential to address adolescent health-risk behaviors during the PPE, little is known about how often health care providers address health-risk behaviors during PPEs and whether they are addressing the most prevalent issues facing the athletes for whom they provide care. The purpose of this descriptive study was to assess the prevalence of health-risk behaviors among school athletes in Minnesota and the proportion of Minnesota health care providers who discuss these behaviors during PPEs. We examine overall prevalence estimates and then assess differences in high school athletes' behaviors by age and sex and providers' discussion by type of provider and the proportion of their patient populations that are adolescents between the ages of 11 and 17 years.

METHODS

Sample/Procedures

We used data from two statewide surveys: the 2010 Minnesota Student Survey (MSS) and an online survey of Minnesota health care providers conducted in April 2013.

Minnesota Student Survey

The MSS is administered during the spring semester every 3 years to students in grades 6, 9, and 12 by the Minnesota Departments of Health, Education, and Human Services. We did not use data from 6th-grade students for the present study. The 2010 MSS consisted of 127 questions assessing a range of health-related