

ORIGINAL ARTICLE

The prevalence and recovery of concussed male and female collegiate athletes

GORDON A. BLOOM¹, TODD M. LOUGHEAD², ERIN J. B. SHAPCOTT¹,
KAREN M. JOHNSTON³, & J. SCOTT DELANEY⁴

¹Department of Kinesiology and Physical Education, McGill University, Montreal, Quebec, Canada, ²Department of Kinesiology, University of Windsor, Windsor, Ontario, Canada, ³Toronto Rehabilitation Hospital, University of Toronto, Toronto, Ontario, Canada, and ⁴McGill Sport Medicine Clinic, McGill University, Montreal, Quebec, Canada

Abstract

The aims of the present study were two-fold: (1) to examine whether gender and explanatory style influence the number of concussions an athlete has sustained and the amount of time to recover from this type of injury; and (2) to determine whether gender and the type of sport influence the number of and recovery from concussion injuries. University varsity athletes ($n=170$) who had sustained at least one concussion over the previous 12 months from six sports completed both the Sport History Questionnaire (Delaney, Lacroix, Leclerc, & Johnston, 2000), used to measure concussions, and the Attributional Style Questionnaire (Peterson *et al.*, 1982), used to measure explanatory style. Overall, males sustained more concussions than female athletes ($F_{1,153}=43.92, P<0.05$). Regarding the type of concussion, male athletes sustained more unrecognized concussions than female athletes ($F_{1,168}=6.18, P<0.05$), but there was no difference between the sexes for recognized concussions ($F_{1,168}=0.44, P>0.05$). Male basketball players took longer to recover (mean = 6.17 days) than female basketball players (mean = 1.15 days). In contrast, female hockey players took longer to recover (mean = 9.56 days) than male hockey players (mean = 1.00 day). Finally, gender did not influence an athlete's explanatory style.

Keywords: Concussion, university athletes, team sports

Introduction

The Centers for Disease Control and Prevention estimates that 300,000 sport-related concussions occur annually in the United States (Dupuis, Johnston, Lavoie, Lepore, & Lassonde, 2000) and account for 75% of all sport-related brain injuries (Cantu, 1986). Not surprisingly, the majority of concussions occur in sports that involve physical contact between its participants. For instance, Delaney and colleagues (Delaney, Lacroix, Leclerc, & Johnston, 2002) found that 62% of varsity soccer players and 70% of varsity football players experienced symptoms of a concussion during the previous year. Similarly, using injury report forms to examine the incidence of injury in female ice hockey players, Schick and Meeuwisse (2003) reported that concussions were the most common injury for Canadian university female ice hockey players. Additionally,

other studies have shown that the concussion rate in athletics is increasing at an alarming rate in nearly all sporting events, for both men and women, including non-contact sports such as baseball and volleyball (Powell & Barber-Foss, 1999). It is not yet clear whether reported rates are due to more injuries or better identification of injuries.

Despite the growing body of research concerning head injuries in athletics, the recognition and diagnosis of concussion in sport is reported to be among the greatest challenges facing medical personnel, and the true incidence of concussion is believed to be much higher than that recorded (McCrea, Hammeke, Olsen, Leo, & Guskiewicz, 2004). The detection and diagnosis of concussion during sporting matches is difficult because there is no biological marker for the detection of a concussion or any diagnostic test with reliable sensitivity