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CASE STUDY

"Ref, Is This the Final?" Concussion Issues at the 2014 FIFA Men's World Cup: A Case Study

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As seen at the 2014 World Cup, concussions can occur in the heat of the moment even on the biggest stage of the world. According to World Cup policy, if a who suffers a concussion, the game still goes on and their teams have a choice, either continue to play a man down or substitute for the injured player. As a result, players want to stay in the game and time is of the essence. Yet, many athletes do not recognize their symptoms as being the result of a concussion, nor do they believe that sustaining a concussion is a potentially grave problem. This case study reveals how players react to potentially incurring a concussion as well as what international organizations are doing to combat this issue. What are sports leagues in the United States and globally doing to educate athletes and coaches about concussion symptoms?

Sport-related concussions have been recognized as a major public health concern of traumatic death and disability on a global basis (Thurman, Alverson, Dunn, Guerrero, & Sniezek, 1999). According to Doolan, Day, Maerlander, Goforth, and Bronlinson (2012) not only are the number of athletes taking part in contact and collision sports worldwide has increase, so has the frequency of sports-related concussions. As a result, the awareness of the long-term impacts and dangers of concussions have greatly increased, thereby becoming a considerable issue (Benson, Meeuwisse, Rizos, Kang, & Burke, 2011; Persky, 2013).

Although historically, many people have believed that concussions required a loss of consciousness (Harmon et al., 2013), such an occurrence is not always the case (American Academy of Neurology, 1997; Ellenbogen, Beger, & Hunt, 2010). What were once referred to as "dings," "hits," or many other less ominous-sounding names by athletes are now clearly defined as concussions (Ellenbogen et al., 2010). However, identifying the existence of a concussion is a very challenging part of concussion management since the signs and symptoms can be unclear as every concussion is unique (Doolan et al., 2012; Kissick & Johnston, 2005).

If the presence of a concussion is not detected and the athlete returns to play prematurely, the athlete may fall into one of three categories of concern: second impact syndrome (SIS), a prolonged recovery from sequential concussions (post-concussion syndrome), or chronic traumatic encephalopathy (CTE) (D'Hemecourt,

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2011). Regarding, postconcussion syndrome, Collins et al., (2002) indicated that athletes that had previously incurred a number of concussions had a greater probability of experiencing major on-field symptoms of amnesia and confusion during repeat concussions. The final category of concern, chronic traumatic encephalopathy (CTE), affects the brain resulting in loss of intellect, memory, balance, and behavioral changes and can result in symptoms similar to those of Parkinson's disease (D'Hemecourt, 2011).

Athletes may also be motivated to disguise or ignore their concussion symptoms (Kissick & Johnston, 2005; Notebaert & Guskiewicz, 2005). As a result, many athletes do not recognize their symptoms of a concussion, nor do they believe that sustaining a concussion is a potentially grave problem (Kaut, DePompei, Kerr, & Congeni, 2003; Miller, Wendt, & Potter, 2011; Rutherford, Stephens, Potter, & Fernie, 2005). The lack of understanding of concussion became apparent at a significant global sporting event, the 2014 FIFA Men's World Cup competition.

This case study will describe several instances in which an athlete incurred a concussion but was allowed to play in the 2014 FIFA Men's World Cup. Moreover, the case study will discuss the concepts of assumption of risk and inherent risk as it relates to athletes' participating in the 2014 World Cup and their return to play after suffering an apparent concussive incident. Finally, FIFA's reaction to the concussive incidents at the 2014 World Cup will be reviewed.

Concussive Incidents at the 2014 FIFA World Cup

During the 2014 FIFA World Cup Championship match between Germany and Argentina, Germany's Christoph Kramer was inadvertently struck on the left side of his head in a collision with Argentina defender Ezequiel Garay (Levin, 2014). Kramer fell to the ground, appeared to lose consciousness, and displayed classic brain injury symptoms known as "fencing response" (Diamond, 2014). In a "fencing response" or "tonic posturing" the forearms are held flexed or extended despite body position or gravity for a period lasting up to several seconds after the impact and may signify that a neurological disturbance has occurred to the individual (Hosseini & Lifshitz, 2009). Despite indications of a serious concussion Kramer continued to stay in the game until the 31st minute when obviously disoriented he slumped again to the ground and was helped off the field by medical staff (ESPN, 2014). Kramer later said,

> I can't remember that much from the game. . . . I don't know anything from the first half. I thought later that I went straight off after the incident. How I got to the changing rooms I do not know. I don't know anything else. The game, in my head, starts only in the second half. (The Guardian, 2014, para. 4)

After the championship game, Nicola Rizzoli, the referee, said that Kramer asked him,

> "Ref, is this the final?" I thought he was joking and made him repeat the question and then he said, "I need to know if this is really the final." When I said, "Yes," he concluded, "Thanks, it was important to know that." (Tong, 2014, para. 2)

This was not the first serious concussion at the 2014 FIFA World Cup. Uruguay defender Alvaro Pereira was inadvertently hit in the head by the knee of England's midfielder Raheem Sterling. Pereira was motionless and appeared to be briefly unconscious on the ground (Freeman, 2014). Alberto Pan, the Uruguay team doctor, signaled for a substitution, but Pereira, visibly shaken, refused, shook his finger at the doctor and stayed in the game, thereby overruling the team doctor (Freeman, 2014). Despite admitting that he lost consciousness, Pereira stated,

> I said "sorry" a thousand times to the doctor because I was dizzy. It was that moment your adrenaline flowing in your body, maybe without thinking . . . what I really wanted to do was to help get the result. . . . What really matters is that everything is OK. Nothing happened. It was just a scare. (Associated Press, 2014, para. 11)

Argentine midfielder Javier Mascherano was in a violent head-to-head collision with Georginio Wijnaldum of the Netherlands in the 2014 World Cup Semi-Final. Exhibiting all the classic signs of a concussion, Mascherano tumbled around with a dazed reaction and clutched his forehead before falling down on to the pitch (Krishnaiyer, 2014). Eventually, with the help of players and medical staff he slowly walked off (Krishnaiyer, 2014). Mascherano was given a cursory exam and after a few minutes rest medical personnel and coaches allowed him to return to play in the game (Rogers, 2014). After the semifinal game, Mascherano was examined by the team doctor to see if he would be available for the championship game. Mascherano said,

> They will tell me if everything is OK. . . . I am sure I am OK. I am fine. It is good. I could feel it during the match, a little bit. I had a bit of a headache but now it is good. (Rogers, 2014, para. 5)

According to McCrea, Hammeke, Olsen, Leo, and Guskiewicz (2003) a common consensus among sports medicine professionals, is that the rate of concussion is higher than the incidence of recorded injuries. Attaining the total number of concussions incurred by athletes every year is often complex as the most accepted method for determining a concussion has been simply to ask the athlete (Notebaert & Guskiewicz, 2005). A previous study indicated that 58% of athletes do not possess adequate knowledge of sport-related concussions. During the 2014 World Cup, both Pereira and Mascherano appeared to be unconcerned about their head injuries and more concerned about the greater glory of winning in the competition. Since the diagnosis and management of sports-related concussions have often depended on an athlete's self-report of concussive symptoms the athlete may expose themselves to increased future harm. This information is amplified as other studies have indicated that being dependent the athlete to report of concussion symptoms may result in increasing the likelihood of future significant brain injury (Kelly & Rosenberg, 1997; Lovell et al., 2003).

According to Jackson (2014), FIFA may face a multitude of lawsuits due to an alleged negligence in its failure to protect players during the World Cup. FIFA protocol states that, "Any athlete with a suspected concussion should be *immediately removed from play* (emphasis in protocol) and should not be returned to activity

until they are assessed medically" (FIFA, 2013, para. 8). If a player is suspected of having a concussion, and has symptoms such as loss of consciousness, lying motionless on the ground or being unsteady on one's feet, all the signs exhibited by the players mentioned above, they should be immediately evaluated and if there is a *suspected* concussion, they should be removed from the game (emphasis added) (FIFA, 2013). Should Pereira have been kept off the pitch? According to FIFA protocol he should not have been allowed to continue to play. Athletes want to continue to compete even if injured. Pereira stayed in the game and played well, but did he place himself at risk for a more significant injury? (Carroll, 2014). As such, to what extent, if any, should an athlete be able to understand the inherent risks of a sport and as a result assume the risk of incurring a concussion?

Inherent Risk

Athletes often believe that having "their bell rung" is a normal part of the game and do not report receiving a concussion. In fact, research has suggested that up to 90% of all sports related concussions may not be detected or reported (Taylor, 2012). Simons (1987) argued that, "A player will ordinarily expect to incur some risk of injury from an athletic contest, and he obviously prefers taking that risk to not playing" (p. 274). While injuries to other parts of the body are usually apparent, the existence of a concussion is not always evident. Athletes who participate in sports that expose contact in the head region are at risk for eventually suffering from permanent brain damage from concussions received during practices or games (Yard & Comstock, 2009).

Yet, even with the consequences of concussion being recognized in the popular press, athletes still participate in sports. So the question becomes: Why are athletes disregarding potential head trauma as previously described in the 2014 World Cup? A potential answer is that contact with the head in sports such as soccer is an integral part of the sport and therefore becomes an inherent risk (Dobbs, 2000; Miller, Wendt, & Potter, 2011). As such, it could be argued that the players are aware and appreciate the "inherent risks" of playing sports but decide to participate anyway (Goldberg, Sebok, & Zipursky, 2008). Furthermore, as it relates to sports, "[the] general rule is that by engaging in a sport or recreational activity, the participant consents to those commonly appreciated risks which are inherent in and arise out of [the] nature of the sport generally and flow from such participation" (Lee & Lindahl, 2013). Even when symptomatic, concussed players may be able to pass a sideline assessment and cleared to continue to play (Goldwein, 2012). In fact, McCrea et al., (2003) stated,

> There is no biologic marker for the detection of concussion or any diagnostic tests with perfect sensitivity and specificity. The detection and diagnosis of concussion on the sports sideline are complicated further by a player's tendency to underreport or mask symptoms . . . . (p. 13)

However, a concussion can lead to a decreased attention, concentration and speed of information processing (Taylor, 2012). As a result, an athlete may not be able to understand either the symptoms of a concussion nor the ability to adequately

consider the risks against continuing to play (McCrea et al., 2003). Therefore, an athlete who returns to play subsequent to incurring a concussion has not sensibly assumed the risks inherent in the game (Kain, 2009).

Assumption of Risk

Assumption of risk has been applied as a defense in a variety of sports participant-injury cases (Marrs & Milligan, 2012). Within a sporting context, the first considerations in using assumption of risk as a defense is to determine whether a supervisory unit (organization or coach) owes a legal duty to protect an athlete, with whom there exists a relationship, from a particular risk of harm that caused injury. An additional consideration is whether athletes purposefully exposed themselves to the risk with full knowledge and appreciation of the existing danger (*Tacrendi v. Dive Makai Charters*, 1993). If athletes are not familiar with certain risks such as the problems presented by a potentially severe, yet relatively imprecise injury such as a concussion, it would be unlikely for them to assume the risk (*Hoge v. Munsell et al.*, 2001).

Concussions have been categorized as an evolving injury that may impact the cognitive ability and neurological functioning of a person (Persky, 2013). Guskiewicz, Weaver, Padua, and Garrett (2000) stated,

> The complexity of the brain and the lack of objective signs and symptoms after injury make the assessment of concussion uniquely challenging. Signs and symptoms that are often present immediately after injury may resolve soon after injury, even when injury to the head may still be life-threatening. (p. 643)

As a result, the symptoms of a concussion may not emerge until several minutes or even hours after the concussive incident (Marar, McIlvain, Fields, & Comstock, 2012). Although the athlete may feel dazed or "out-of-it," increased adrenaline from the pressure of game-time situations, such as described by Kramer, Pereira and Mascherano may not allow an athlete to relate to an evolving concussive injury to a specific hit or collision (Mulligan, Boland, & Payette, 2012). In addition, because concussions may cloud short-term memory, athletes who become concussed may not recall the level of an impact when symptoms ultimately emerge (Harmon et al., 2013). Thus, the athlete may not seek care from health professionals if they are unable to recognize or associate their symptoms with concussive event (Mulligan et al., 2012).

FIFA Reaction to Concussive Incidents

FIFA has been aware of the problem of concussions, specifically at previous World Cup competitions. While there were four recorded concussions in 2002 and only one in 2006, concussions were cited as some of the most under-reported of all injuries in World Cup competition (Dvorak, Grimm, & Kirkendall, 2007). Perhaps, in response to the most recent incidents at the World Cup, FIFA announced a collaborative project between University-Hospital Zurich's Clinic of Neurology,

Aurich's Schulthess Clinic and FIFA to determine return to play protocols after a player has suffered a concussion (FIFA, 2014). In announcing the project they noted that approximately thirteen percent of the all injuries at the World Cups involved the head and neck and fourteen percent of those injuries resulted in a concussion. Dvorak said that, "First and foremost, it is crucial that the condition is examined in detail and assessed appropriately within 24 hours of the event. . . . The aim of our project is to get injured players back on the pitch as quickly and as safely as possible . . ." (FIFA, 2014, para. 4).

Conclusion

As seen in the cases of Kramer, Pereira and Mascherano concussions can occur in the heat of the moment on the biggest stage of the world. There have been suggestions that FIFA should allow temporary substitutions so that an injured player may receive a proper evaluation and, if cleared, be allowed to return to the game. If not cleared, the player is removed. Former United States soccer star, Alecko Eskandarian, now an assistant coach for the New York Cosmos, said that changing the rules would lead to players faking head injuries and "Suddenly, if one team has momentum, 10 guys from the other team would have concussions. It's a slippery slope and it will ruin the game. So I'm not sure you can ever change that rule" (Macur, 2014, para. 11). But leading concussion expert Dr. Robert Cantu supports the idea saying that ideally there should be no time limit for a proper evaluation and that, "FIFA has had the eyes of the world look at them and has rather unanimous criticism from concussion specialists in this country, who were kind of appalled at the way they handled concussions. . . . I do think it's time for them to change" (Macur, 2014, para. 19).

Case Study Questions

1. What are other major sports leagues in North America and other places in the world doing to educate athletes and coaches about concussion symptoms?
2. What differences exist between youth sport participants and professional athletes regarding an understanding of inherent risks in sports?
3. Since self-reporting is often used to determine the presence of a concussion, should an athlete, who is concussed but continues to participate, assume the risks of continuing to play?
4. In Mascherano's situation, he was given a brief exam for concussion and was allowed by team medical personnel and coaches to continue playing after two hours. Was this enough time for him to return to play? What legal consequences might the medical personnel and coaches face if Mascherano later incurred another, potentially debilitating, concussion?
5. What steps can organizations such as FIFA take in creating a better understanding of concussions in their sports?

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