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Athletes' Knowledge and Attitudes Toward Concussions



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ABSTRACT

Concussions are a serious injury with significant short and long-term consequences. With the increasing awareness of the dangers of concussions, research has been directed toward educating coaches, athletes, and clinicians about this condition. The purpose of this study was to evaluate DII football athletes' knowledge and attitudes toward concussion, so we can determine what education is necessary to better inform them, in order to be able to conduct a more efficient evaluation. A total of 55 male football athletes from NCAA DII institutions agreed to take part in the survey on a voluntary basis. Subjects completed a survey assessing athletes' knowledge and attitudes toward concussions. Survey questions included those on concussion symptoms, return to play guidelines, and education they received about concussions prior to taking this survey. The results of the study indicated that the majority of subjects had received some type of education on concussions, though this knowledge does not necessarily facilitate a change in attitude regarding how they perceive concussions. Statistical significance was observed in one survey question, which addressed the long-term effects of returning to play too soon following a concussion. Other significant findings were related to return to play protocol. Future efforts should be directed towards evaluating the effectiveness of concussion education for specific changes in overall perception.

INTRODUCTION

A concussion is a traumatic brain injury that alters the way the brain functions. This could result from a direct blow to the head or the upper body being violently shaken (Bloodgood, *J Adolesc Health*, 2013). Despite more current research regarding the dangers of sustaining a concussion, most athletes remain unaware of the consequences that can result from a blow like this. As clinicians, our responsibility to our athletes is to inform them of the potential dangers associated with concussions (Gourelly, *Athletic Training and Sports Healthcare*, 2012). By determining what our athletes do know, we can better assess their future needs in regards to concussion education. The purpose of this study was to evaluate Division II football athletes' knowledge and attitudes towards concussions. A proper evaluation can only be done if the athlete is both competent and cooperative – this includes their ability to recognize symptoms, their understanding of management and return to play policies, and their understanding of the significance and risks involved with these injuries. By gaining insight into how much our athletes really know about concussions, we can determine what education is necessary to better inform them, so we are able to conduct a more efficient evaluation.

PURPOSE

The purpose of this study was to evaluate DII football athletes' knowledge and attitudes toward concussion, so we can determine what education is necessary to better inform them, in order to be able to conduct a more efficient evaluation.

METHODS

Subjects

Subjects were recruited by contacting Athletic Trainers from NCAA Division II institutions in the Ohio Midwestern region. Four institutions agreed to allow their athletes to take place in the study and to aid in the distribution of survey materials, while the remaining institutions declined participation. A total of 55 male football athletes took part in the study. As part of the inclusion criteria, athletes under the age of 18 were exempt from participating. Participation in the study was on a voluntary basis and subject to informed consent. Before participating in the study, all subjects read and signed an informed consent form approved by the University's Institutional Review Board for the Protection of Human Subjects, which also approved the study.

Procedures

A survey assessing athletes' knowledge and attitudes toward concussions was developed for use in this study through literature review. Survey questions included those on concussion symptoms, return to play guidelines, and education they received about concussions prior to taking this survey. General concussion knowledge was assessed using a series of 15 true/false questions as well as a checklist of symptoms that required subjects to check-off the correct symptoms of a concussion, based on personal experience or general knowledge. The athletes' knowledge of return to play guidelines was assessed using a similar checklist which asked when an athlete was able to return to play following a concussion, with answers such as, "during the same game or practice as the injury" or "if the imaging study (CT, MRI, x-ray) comes back normal."

Athletes' attitudes toward concussions were assessed using a series of scenario-based questions. Postinjury reporting behavior was assessed using a series of 5 questions, with the participant given a certain scenario followed by two options to choose from, one where they would continue playing and one where they would report their symptoms. Finally, a four-point Likert scale was used to indicate the likelihood that they would report a concussion, with answers ranging from 1 (very strong) to 4 (very poor).

A series of 4 questions inquired about concussion education players had received in the past. Questions included those on the school's concussion policy, baseline testing and its effectiveness. Participants were asked to check-off what type of education they had received, with answers including handouts, videos, and seminars, with space to include additional methods of receiving concussion education.

Surveys were mailed to each of the schools' Athletic Trainers to be distributed among the athletes. Once completed, the athletes returned the surveys to the Athletic Trainer to be mailed back for review and data collection. Consent was obtained by the participant's willingness to complete and return the survey.

		Sum of Squares	df	Mean Square	F	Sig.
Q11	Between groups	.005	1	.005	.076	.784
	Within groups	3.709	54	.069		
	Total	3.714	55			
Q12	Between groups	.001	1	.001	.036	.849
	Within groups	1.927	54	.036		
	Total	1.929	55			
Q13	Between groups	.912	1	.912	25.554	.000
	Within groups	1.927	54	.036		
	Total	2.839	55			
Q14	Between groups	.273	1	.273	1.076	.304
	Within groups	13.709	54	.254		
	Total	13.982	55			
Q15	Between groups	.354	1	.354	1.446	.234
	Within groups	13.200	54	.244		
	Total	13.554	55			

Table 1 – Descriptive Statistics

STATISTICAL ANALYSIS

A one-way analysis of variance (ANOVA) was used to quantify the data. A priori alpha level was set at less than .05%. All analyses were performed using IBM SPSS V.22.

RESULTS

The results of the one-way analysis of variance showed that the majority of subjects (89%) reported having received some type of education on concussions. There were no statistically significant changes observed among any of the survey questions regarding knowledge and attitudes toward concussions, except for one. This question related to the long-term effects of a concussion if returning to play too soon (25.554, p=0.000), as seen in *Table 1*. While not statistically significant, the next closest question to being in that range also related to return to play and who makes the decision (3.373, p=0.072).

DISCUSSION

A concussion is a common sports-related injury, particularly in the sport of football (Gessel *J Athl Training* 2007). Because of the serious immediate and long-term effects one can suffer from a concussion, education plays a vital role in the prevention, recognition, and management of these injuries. Research suggests that education has been minimal for athletes, resulting in poor return to play decisions and even failure to report a suspected concussion (Sye, *Br J Sports Med*, 2006). This lack of knowledge not only endangers the athlete, but it affects the clinicians as well. An athlete's knowledge and ability to recognize an injury enables us as clinicians to perform a proper evaluation of their condition; so when an athlete is ill-informed, it makes performing an evaluation extremely difficult. This is why education is so essential. Evidence in the past has shown education to be minimal, but the results of this study indicated that athletes are well-informed about concussions. This could be due to the increasing awareness of the dangers of concussions, leading to a more urgent need for education. This study was comparable, though, to similar studies in that athletes' attitudes appear to be the main cause of underreporting, rather than a lack of education. In a recent study done on the effectiveness of concussion education, researchers discovered that the education athletes were receiving, minimal or not, did nothing to change their reporting-related cognition (Kroshus, *Br J Sports Med*, 2013). This means that despite what athletes know, their attitude towards these injuries do not change. Since education appears to have a minimal effect on their attitudes, we must consider effective ways that promote a change in attitude rather than just an increase in knowledge.

Limitations

While this study had similar findings compared to others, it should be noted that the sample size used in this research was small in size. Perhaps a larger sample size would have yielded more statistically significant results. Also important to note, is the lack of reliability of the given survey instrument. Similar studies have utilized surveys and questionnaires that have been developed and used in research before. This provides them with significant validity, while the instrument used in this study was being used for the first time.

CONCLUSION

Based on the results of the study, we determined that DII football athletes are well-informed about concussions, but that this general knowledge does not necessarily facilitate an attitude change in how they perceive concussions. Future efforts should be directed toward evaluating the effectiveness of concussion education for specific changes in overall perception, causing athletes to report concussions on a more consistent basis, regardless of the severity of the symptoms or the situation in which the concussion is sustained.