

The Gap Between Education and Retention of Concussion Protocol, Symptoms, and Risks in Collegiate Athletes

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ABSTRACT

In the past 25 years, traumatic brain injuries (TBI) have been increasing nationwide. TBIs have become an important public health issue because of the large number of concussions sustained, the generally young age of patients at the time of injury, and the potential cumulative effects of repeated injuries. **PURPOSE:** To determine if there is a gap between education and retention of concussion protocol, symptoms, and risks in collegiate athletes. **METHODS:** An IRB approved Google Form survey, which included a consent form, was collected from 167 student athletes to determine the specifics of the gap between education and retention. The survey consisted of 4 demographic based questions, 5 yes/no/not sure questions based on current levels of concussion education, 3 open-ended questions based on what the athlete would do if they believed they sustained a concussion, 2 open-ended questions about the Universities current policies, 1 question regarding Post-Concussion Syndrome, and a 17 choice checkbox to test the athlete's current knowledge of concussion symptoms. A one-way ANOVA was performed to determine the significance between contact (football, lacrosse, soccer, basketball), limited-contact (volleyball, softball, baseball), and non-contact (tennis, golf, swim, track/XC) sports of concussion education retention. Another one-way ANOVA was performed to determine the significance between lowerclassmen and upperclassmen of concussion education retention. **RESULTS:** Results were collected and coded based on responses using a scale of 1 to 4 (1- nothing, 2- showed basic knowledge but would not report symptoms, 3- report symptoms to coach, 4- report symptoms to medical professional) based on the response to "what would you do if you believed you sustained a concussion?": The means (sd) of response levels were 2.5 (1.39), 2.9 (1.33), and 3.8 (0.57) for contact sport, limited-contact sport, and non-contact sport, respectively. The results of the one-way ANOVA suggest that there was a significant difference among the means ($F(2,159) = 12.75, p < 0.001$). Further, the effect of type of sport accounted for 13.5% ($\eta^2 = 0.135$) of the changes seen in concussion A Tukey post hoc test revealed that measures of concussion education levels were significantly greater for non contact sports compared to both contact ($p < 0.001$) and limited contact sports ($p = 0.007$). The means (sd) of education level were 3.13 (0.56) and 3.046 (0.76) for underclassmen and upperclassmen, respectively. The results of the one-way ANOVA suggest that there was no significant difference among the means ($F(2,159) = 0.236, p = 0.628$). 77.7% of the athletes surveyed also reported a lack of familiarity with Post-Concussion syndrome. **CONCLUSION:** By confirming the existence of a gap between education and retention of concussion protocol, symptoms, and risks in collegiate athletes, this research discovered that contact sport athletes are less likely to report concussion symptoms, and thus, may have less retention of education. These results may be due to the higher frequency of head injuries that occur in contact sports compared to non-contact sports. The fact that there is no significant difference in underclassmen to upperclassmen suggests that there is a lack of retention of the concussion education the athletes are receiving.