Cognitive Effects of Concussions on Student Athletes

In recent years, concussions have become a critical public health issue for athletes at all levels. For this study, we analyzed data from the ImPACT (Immediate Post-Concussion Assessment and Cognitive Testing) collected by the Student Health Center at Missouri University of Science and Technology, a public research university with NCAA Division II athletics. Data were obtained from 125 student-athletes from a variety of sports. Baseline evaluations were completed before the player began practices for their sport and post-injury measurements were taken within 24 hours of initial injury. We performed k-means clustering analysis to identify clusters of players with similar post-concussion outcomes, and sought to identify whether these clusters systematically mapped on to particular sports. This analysis yielded three distinct clusters: one cluster of players who showed increases in ImPACT scores, one cluster who showed minimal decreases in ImPACT scores, and one cluster who showed more substantial decreases in ImPACT scores. There was no clear pattern of the sports associated with each cluster; follow-up ANOVAs also indicated no significant differences between sports in terms of post-concussion cognitive outcomes. This suggest that other variables, such as location of impact, force of impact, and individual differences may have a stronger influence on cognitive effects of concussion than the particular sport played.

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