



Knowledge Transfer of Educational Online Concussion Modules



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KINE 3325 – Undergraduate Research Methods – Research Project

Michael Bolli, Ryan Johnson, Jessica Lair, Heather Sandford

Dr. Jacob Resch, and Dr. Priscila Caçola

Department of Kinesiology, University of Texas Arlington, Arlington, TX 76019

ABSTRACT

BACKGROUND: Sport-related concussion has become a major health concern resulting in new legislation mandating standardized concussion education for coaches and administrators.

PURPOSE: To determine the effectiveness of 3 online education modules designed to educate coaches on concussion.

METHODS: 18 participants (9 female and 9 male) were recruited to participate in this study. After signing an informed consent participants completed a demographic questionnaire form. Participants were then randomly assigned into 3 groups (3 males and 3 females). Each group was assigned a different concussion education module and a pre-quiz before starting their assigned module. Prior to and after completion of the assigned module, participants completed a quiz with questions about concussion. Testing sessions lasted sixty minutes. An analysis of variance was used to determine group differences. Paired t –tests were used to determine pre- and post-test differences. Analyses were performed with $\alpha = .05$.

RESULTS: No significant differences existed between groups either prior to or after concussion module completion. No significant differences existed between groups in regards to age or pre-quiz performance. Significant differences existed between pre and post quizzes for the CDC Module (CDC): $t_{(4)}=3.4, p=.026$, the Preventing Concussion module (PC): $t_{(4)}=3.75, p=.02$, and Brain 101: the Concussion Playbook Module (Brain 101): $t_{(3)}=-5.23, p=0.014$.

CONCLUSIONS: Our results revealed no differences between modules based on quiz performance. However, significantly improved quiz performance suggests each program successfully achieved knowledge transfer.

PURPOSE

The purpose was to compare 3 different online concussion modules and evaluate knowledge transfer.

INTRODUCTION

- Increasing awareness of concussions has led to legislation mandating education for coaches and administrators regarding sport-related concussion.¹
- Due to a lack of medical professionals, increased awareness of this injury is needed to assist in recognition and removal of concussed athletes from practice(s) and/or competitions.²
- A variety of concussion education modules address what a concussion is, common misconceptions, recognition, and management of this injury, with little evidence of effectiveness.
- Our hypothesis was performance on a pre- and post- quiz would be significantly better for participants assigned the CDC module compared to Prevention Concussion and Brain 101: The Playbook.

METHODS

The study was conducted with a sample of students from the University of Texas at Arlington and was approved by the University Institutional Review Board. (#2012-0405)

Participants:

- 18 participants (9 males and 9 females) participated in this study
- Participants were randomly assigned into 1 of 3 groups (3 males and 3 females).

Protocol:

- After providing consent, participants completed a pre-quiz consisting of standardized questions regarding concussion.
- Participants completed the assigned concussion education module and then finished up the session with a post-quiz and survey.



RESULTS

- 4 participants were excluded English not being the primary language, diagnosed with ADD/ADHD, and incomplete data.
- A total 8 females and 6 males were included in our analyses. Demographics for each group may be found in Table 1.

Education Module	Age (years) Mean (SD)	Pre-Quiz Mean (SD)	Post-Quiz Mean (SD)
CDC	21.2 (5.06)	69.2 (14.56)	89.2† (8.64)
PC	20.4 (3.3)	58.6 (21.97)	92.2† (5.31)
Brain 101	20.5 (1.7)	61.5 (14.06)	88.5† (9.81)

Table 1. Group Demographics and Quiz Performance († = $p < .05$)

- No significant differences existed between groups in regards to age or pre-quiz performance.
- Our ANOVA revealed no significant difference existed between groups regarding pre-test ($F_{(2,13)}=.485, p =.628$).
- No significant group differences existed for post-quiz performance ($F_{(2,13)}=.285, p=.757$).
- Significant differences existed for pre- and post-quiz performance for the CDC: $t_{(4)}=3.4, p=.026$, PC: $t_{(4)}=3.75, p=.020$, and Brain 101 $t_{(3)}=5.23, p=0.014$ which are presented in Figure 1.

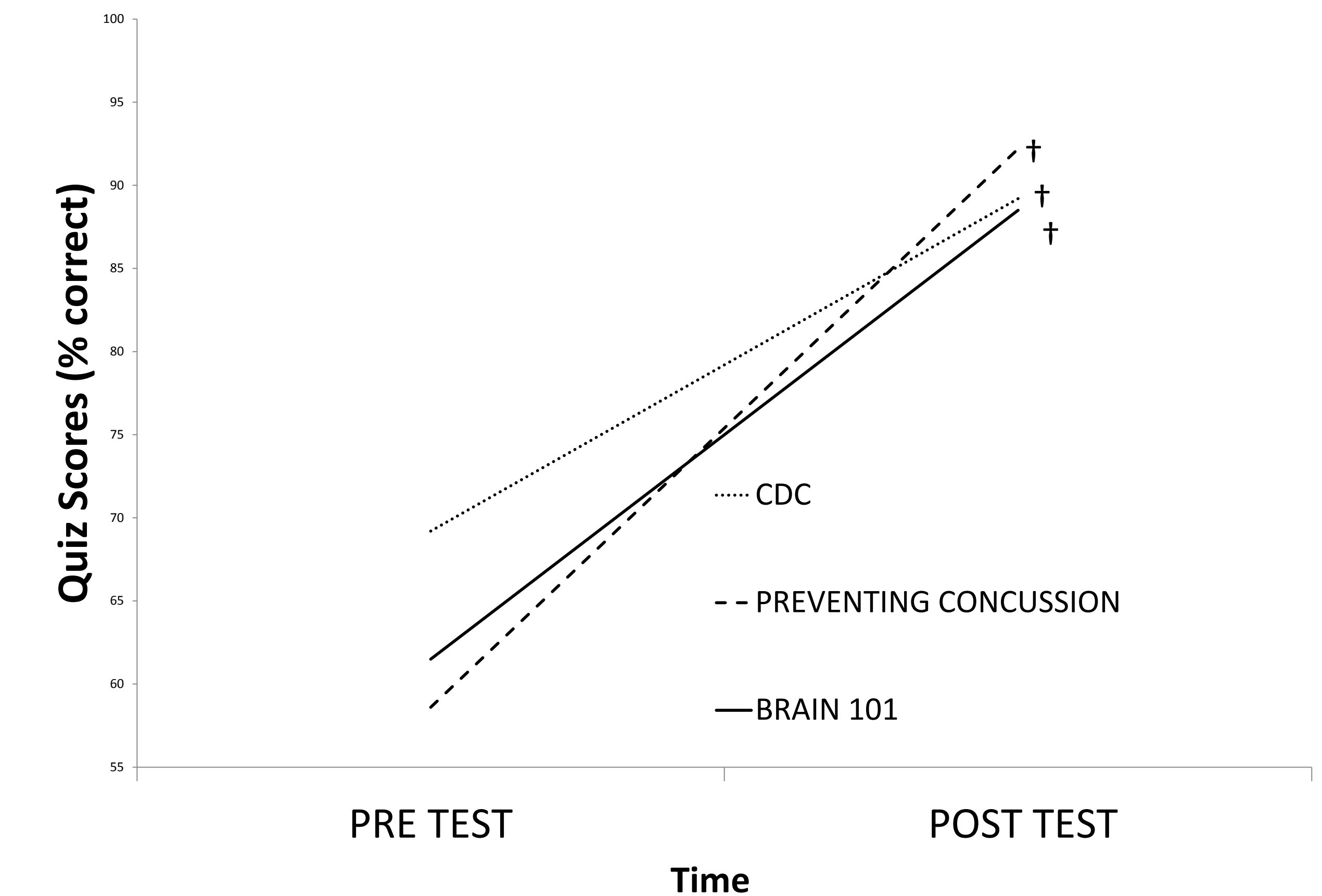


Figure 1: Knowledge Transfer from Pre to Post-quiz († = $p < .05$)

DISCUSSION

- The purpose of this study was to compare three different online concussion modules and evaluate the knowledge transfer.
- We hypothesized that the CDC module would show a significantly greater increase compared to the other two modules, but in fact no one module was greater than the others.
- A larger sample size is advocated to further support our findings.
- Our results suggest potential knowledge transfer within each group supporting the fact that all educational modules will increase awareness.
- New legislation is providing a mandatory concussion education. Research such as this provides demonstrates the effectiveness of education modules used to complete this task.

REFERENCES

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