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 α = .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(5)=5.23, p=.014, the Preventing Concussion module (PC): t(5)=3.75, p=.026, and Brain 101: the Concussion Playbook Module (Brain 101): t(5)=3.75, p=.026.

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

INTRODUCTION

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

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.

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

<table>
<thead>
<tr>
<th>Education Module</th>
<th>Age (years) Mean (SD)</th>
<th>Pre-Quiz Mean (SD)</th>
<th>Post-Quiz Mean (SD)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CDC</td>
<td>21.2 (5.06)</td>
<td>69.2 (14.56)</td>
<td>89.2† (8.64)</td>
</tr>
<tr>
<td>PC</td>
<td>20.4 (3.3)</td>
<td>58.6 (21.97)</td>
<td>92.2† (5.31)</td>
</tr>
<tr>
<td>Brain 101</td>
<td>20.5 (1.7)</td>
<td>61.5 (14.06)</td>
<td>88.5† (9.81)</td>
</tr>
</tbody>
</table>

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 ($F_{(2,11)}=485, p=.628$).

No significant group differences existed for post-quiz performance ($F_{(2,11)}=285, p=.757$).

Significant differences existed for pre- and post-quiz performance for the CDC: $t_{(5)}=3.75, p=.026$, PC: $t_{(5)}=3.75, p=.020$, and Brain 101 $t_{(5)}=5.23, p=.014$ which are presented in Figure 1.

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