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Web-based Instruction and Face-to-Face Instruction of Physical Therapy Psychomotor Skills: Effects on Student Performance

Presentation outlining the results of the following research project:

PURPOSE: The purpose of this pilot study was to compare student learning of clinical skills from online streamed video instruction versus traditional face-to-face instruction of psychomotor examination and treatment skills of the cervical region.

BACKGROUND/SIGNIFICANCE: Online education continues to expand in its applications within the college classroom. Within the health professions, a vast majority of the curriculum requires students to learn hands-on, clinical skills, which have historically been taught in a face-to-face setting in which faculty demonstrate and students practice the skill. The literature examining the effect of Computer-Assisted Instruction (CAI) on psychomotor skills is limited.

METHODS: Fourteen physical therapy students were randomly assigned to two groups. Four novel musculoskeletal examination and intervention techniques for the cervical region were used in this study. Group A received online streamed video instruction of Skill Set 1 (examination skills) using the Angel Learning Management System, and face-to-face instruction using faculty demonstration of skill Set 2 (interventions skills). Group B received online streamed video instruction of Skill Set 2 using the Angel Learning Management System, and face-to-face instruction using faculty demonstration of Skill Set 1. Following these instructional sessions, students had a two-day, self-directed practice period. Following this practice period, student performance of all skills was evaluated by a member of the faculty with content expertise and blinded to group membership. A grading rubric for the skill performance evaluation was used to rate student performance. After this performance evaluation, a second laboratory session was scheduled during which members of Group A received face-to-face instruction of Skill Set 1, and online streamed video instruction of Skill Set 2. Members of Group B received face-to-face instruction of Skill Set 2, and online streamed video instruction of Skill Set 1. Following another two-day, self-directed practice period, student performance was re-evaluated.

ANALYSES: An ANOVA was performed to determine differences in student performance after the first and second instructional sessions.

RESULTS: There were no statistically significant differences between student performance on skills when instruction is delivered through streamed video vs. face-to-face instruction ($\alpha=.05$). Additionally, no statistically significant differences in student performance were observed when the order in which students received the two methods of instruction was compared.

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CONCLUSIONS: The use of online streamed video may serve as an equally effective method of instruction of psychomotor examination and treatment skills of the cervical region. There appears to be no ordering effect of instructional methods on student performance. The low sample size and number of skills measured limit the generalizability of these findings. y have still a long way to come.