

IMPROVED EDUCATIONAL OUTCOMES IN FIRST YEAR DPT STUDENTS AFTER INCORPORATING AN ACTIVE LEARNING MODEL FOR SHOULDER BIOMECHANICS CONTENT

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Subjects participating in this study are protected by IRB approval at the University of Minnesota and in compliance with the Family Educational Rights and Privacy Act (FERPA).

BACKGROUND AND PURPOSE: Active learning (AL) strategies are supported by growing evidence, but with limited data specific to PT education. Our purpose was to compare performance between two cohorts, one receiving traditional lecture, one AL.

SUBJECT(S): 98 DPT students; two consecutive years

METHODS AND MATERIALS: The shoulder unit of a clinical biomechanics course was presented to one cohort through traditional lecture. A second AL cohort watched prerecorded lectures and then applied concepts in small groups with instructor guidance. Outcomes included overall exam question performance (n=17 questions), and question subsets including recall and application (Bloom's Taxonomy). The AL cohort also completed a feedback survey including ratings of confidence regarding learning objectives and open-ended comment on benefits and concerns regarding the AL method.

ANALYSES: A two-way ANOVA compared percentage correct across cohorts and question subsets. Content analysis was applied to identify themes of comments. Confidence ratings (%) were calculated by Likert score.

RESULTS: There was a significant effect ($p=0.04$) of cohort with AL demonstrating 4.6% higher percentage correct on exam questions overall. There was no significant interaction of question subsets with cohort ($p=0.33$). Expressed benefits of AL from content analysis were that prerecorded lecture concepts were applied to practice (55%) and students could effectively problem solve with peers (50%). Fifty percent of students expressed wanting more in-class review prior to applying content in small groups. Students stated confidence (slightly agree or above) in applying shoulder biomechanics content to describe observed movement (73%), and in applying content in clinical scenarios (64%).

CONCLUSIONS: Students in an AL cohort demonstrated improved exam scores, were confident in achievement of learning objectives, and were effective in applying new concepts to clinical scenarios in collaboration with peers.

IMPLICATIONS: Active learning strategies may effectively prepare DPT students for integration of foundational biomechanics into clinical application.