



Electric Conversations: An Active Learning Approach to Electrotherapy Content in DPT Education

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INTRODUCTION

In response to an evolving generation of student learners, Doctor of Physical Therapy (DPT) faculty have been tasked with utilizing teaching strategies that engage students and promote critical thinking. Traditional teaching strategies such as lecture may not meet learner expectations or contribute to student success.¹ Additionally, large class sizes may present challenges to ensuring student engagement with course content. Previous studies have demonstrated the effectiveness of active learning approaches in health professions education, with benefits ranging from course content retention, integration of knowledge, and caring about the learning process.²⁻⁴

PURPOSE

The purpose of this project was to design and implement an active learning teaching session to deliver electrotherapy course content in a first year DPT Biophysical Agents class of 67 students.

DESCRIPTION

The active learning activity implemented in this project was designed as a combination of active learning strategies to accommodate the number of topics to cover and large class size to promote consistent student involvement throughout the activity. The active learning strategies were jigsaw method combined with peer teaching utilizing a memory matrix. The jigsaw technique involves a topic being divided into subtopics where an individual is assigned to be an expert on a singular part, then is tasked to teach others about their subtopic. Use of the jigsaw method has been associated with higher post-test scores in medical students than didactic learning methods.⁵ Peer teaching, during which individuals help each other learn and learn themselves by teaching⁶, has demonstrated benefits including increased skills and confidence in communication and teamwork in first year physiotherapy students.⁷

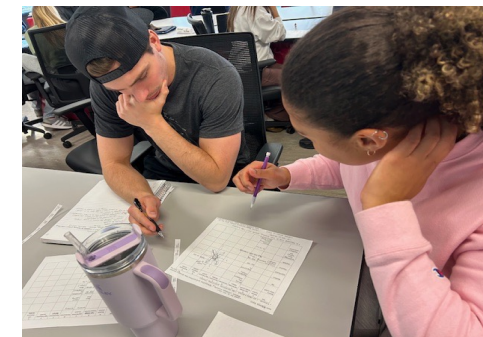


Table 1. Memory Matrix Row Headings
Russian
High Volt Pulsed
Interferential
Microcurrent
Symmetrical Biphasic
High Frequency
Low Frequency
Brief Intense

Table 2. Memory Matrix Column Headings
Use
Waveform
Pulse Duration
Frequency
Amplitude
Duration/Duty cycle/Treatment time
Sensory/Motor/Both
Population Benefitted

SUMMARY OF USE

Two DPT course faculty provided students with instructions and objectives of the activity in the first 15 minutes of class. Students were divided into 8 groups of 8-9 individuals and assigned to an electrotherapy current. They were given 20 minutes to review the current type with their group members utilizing any resource available (e.g. notes, textbook, internet). Students were provided a memory matrix, a table divided into rows and columns utilized to organize information and identify areas of understanding or need for additional resources⁸ (Tables 1 & 2). Students were advised that during the next phase of the activity they would have access to handwritten notes, however would not be able to utilize electronic resources. Students then were assigned partners who had studied a different current type on a rotating schedule and given 7 minutes to peer teach one another about their assigned electrical current.



OUTCOMES & FUTURE DIRECTIONS

A written examination of electrotherapy content was given two days following the activity (Table 3).

Table 3. Electrotherapy Test Outcomes	
Average	88%
High Score	102%
Low Score	65%
Received Passing Grade	94%
Unsuccessful in Passing	6%

While there is a growing body of literature supporting the use of active learning approaches in the health sciences, strategies should be implemented following careful consideration of learner needs, faculty training, and course outcomes.⁴ Plans to formally assess the current active learning approach to electrotherapy content in DPT curricula will be implemented in future projects. Additionally, the relationship between student perceptions of participation in the activity and their understanding of course material could be assessed.

REFERENCES

