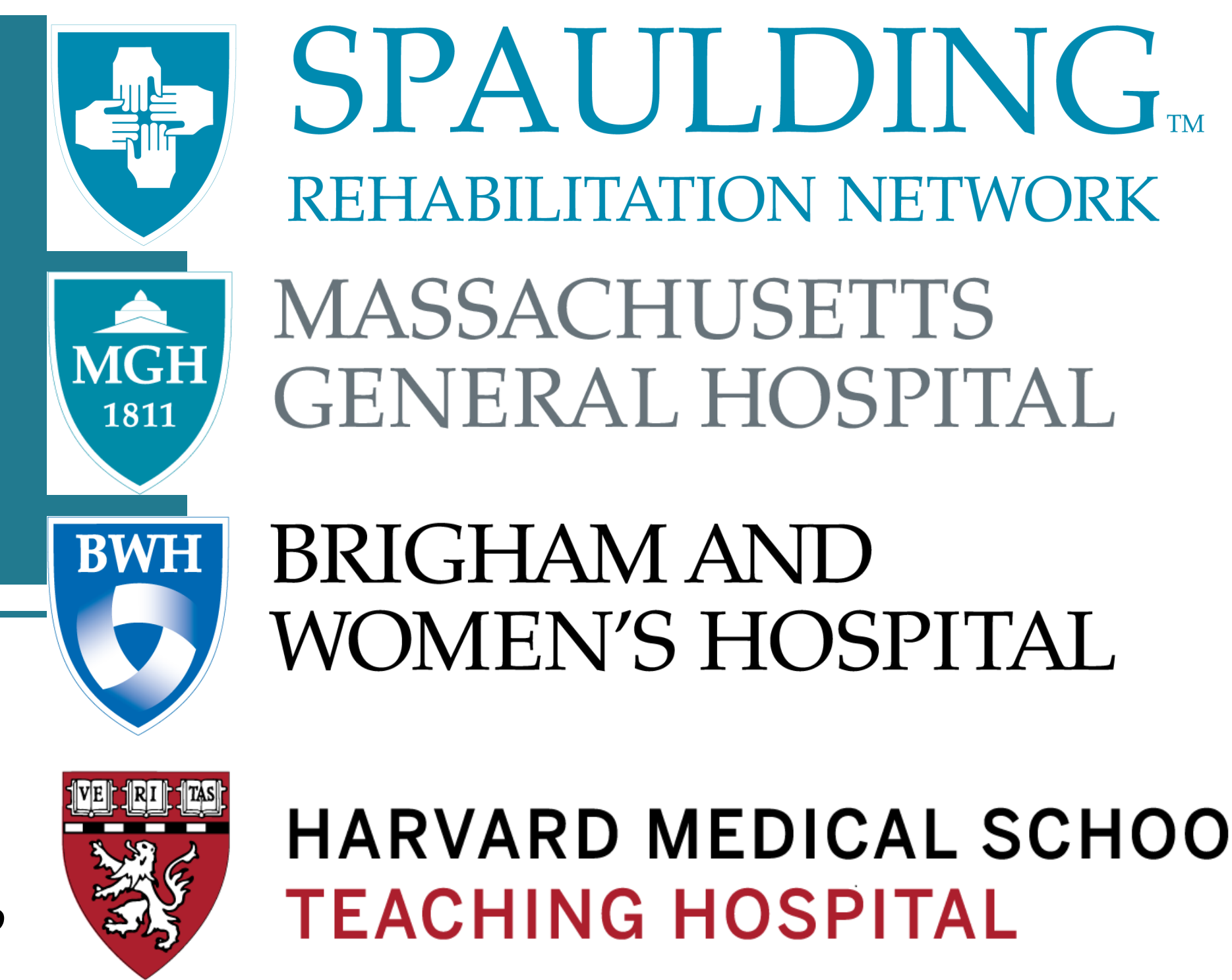


# Engaging Medical Students in Physiatry: Impact of Live versus Pre-Recorded Introductory Lectures



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## Introduction

Medical school curricula do not uniformly include Physical Medicine and Rehabilitation (PM&R) educational content and fewer than half of U.S. medical schools have departments of PM&R.<sup>1</sup> This leaves many schools without physiatrists to deliver any in-person pre-clinical or clinical content at all.

Supplemental e-learning (electronic learning), using digital technology to enhance knowledge and performance, could provide a simple way for students to acquire basic PM&R exposure.<sup>2,3</sup> For example, for PM&R-naïve students not enrolled in clinical PM&R experiences, access to enduring electronic PM&R content could provide educational value, while also providing exposure to the field of PM&R.

This study aimed to assess whether knowledge of basic PM&R principles and perceptions of PM&R differed between PM&R-naïve students provided in-person education (current gold standard for teaching) and those provided pre-recorded video education with identical content.

## Methods

A mixed-methods pilot trial and analysis were performed. Eighteen medical students participated, nine allocated to each educational arm (in-person lecture arm, pre-recorded video lecture arm). Participants in each arm simultaneously received an identical series of five 10-minute introductory PM&R lectures on subfields of PM&R, delivered by the same senior PM&R resident.

All participants were given two assessments before and after their intervention: a 20-question multiple choice knowledge quiz and a survey querying perception of clinical relevance of PM&R to the participant's overall medical education. The perception survey also queried level of interest in pursuing clinical PM&R exposure.

Primary study outcomes were changes in mean knowledge and perception scores within groups pre-/post- intervention and comparison of means between the two study arms. Statistical significance was defined at the 5% ( $p \leq 0.05$ ) level.

## Results

	Live Lecture Arm (n = 9)	Pre-Recorded Video Arm (n = 9)	Comparison of Means (p-value)
Pre-intervention average score	10.9 ± 2.33	11.1 ± 1.73	0.83
Post-intervention average score	16 ± 2.98	18.3 ± 0.94	0.051
Pre/Post intervention average score change	5.1 ± 2.73	7.2 ± 1.99	0.09

**Table 1:** Knowledge Assessment Scores

	Live Lecture Arm (n = 9)	Pre-Recorded Video Arm (n = 9)	Comparison of means (p-value)
<b>Q1: Is learning about PM&amp;R relevant to your education as a medical student</b>			
Pre-intervention average response	3.66 ± 1.11	3.56 ± 0.83	0.82
Post-intervention average response	4.22 ± 0.79	3.67 ± 0.81	0.18
Pre-/post- intervention score change	0.56 ± 0.69	0.11 ± 0.56	0.17
<b>Q2: Is learning about the types of patients PM&amp;R doctors treat relevant to your education as a medical student?</b>			
Pre-intervention average response	3.56 ± 1.11	4.22 ± 0.91	0.19
Post-intervention average response	4.22 ± 0.63	4.0 ± 0.94	0.59
Pre-/post- intervention score change	0.67 ± 0.67	-0.22 ± 1.03	0.06
<b>Q3: Is learning about principles of PM&amp;R relevant to your future practice of medicine?</b>			
Pre-intervention average response	3.22 ± 1.05	3.89 ± 0.99	0.21
Post-intervention average response	4.33 ± 0.94	3.67 ± 0.82	0.15
Pre-/post- intervention score change	1.11 ± 0.87	-0.22 ± 0.92	<b>0.009*</b>
<b>Q4: Are you interested in enrolling in a clinical PM&amp;R experience at this time?</b>			
Pre-intervention average response	2.44 ± 0.86	2.11 ± 0.74	0.41
Post-intervention average response	3.22 ± 0.79	2.11 ± 0.88	<b>0.01*</b>
Pre-/post- intervention score change	0.78 ± 0.63	0 ± 0.47	<b>0.01*</b> * = $p < 0.05$

**Table 2:** Perception Questionnaire Scores

## Results (continued)

No significant differences were found for score changes between groups on the knowledge quiz ( $p = 0.09$ , Table 1). Within-group changes from baseline to final scores were significant for both groups ( $p < 0.001$ ).

Significant score changes between groups were found for two questions on the perception survey: "Is learning about principles of PM&R relevant to your future practice of medicine?" ( $p = 0.009$ ) and "Are you interested in enrolling in a clinical PM&R experience at this time?" ( $p = 0.01$ ), both favoring the in-person group (Table 2).

## Conclusions

Pre-recorded and in-person lectures can provide similar knowledge gains. However, pre-recorded lectures yield lower perception of clinical relevance of PM&R and desire to acquire PM&R training.

For students actively participating in clinical PM&R clerkships, pre-recorded lectures could be used to deliver basic didactic content, in turn, preserving clinical time for more nuanced bedside teaching.

For PM&R-naïve students, pre-recorded lectures could be used to deliver basic didactic PM&R content; supplemental in-person interaction may be necessary to stimulate enthusiasm for future clinical engagement with PM&R.

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