

# Traditional Lecture Versus Procedural Video Randomized Trial: Comparative Analysis of Instructional Methods for Teaching Baclofen Pump Management

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## INTRODUCTION

- This study aimed to compare the effectiveness of traditional lectures and micro-videos in teaching baclofen pump programming.
- **Hypothesis:** no significant difference in the effectiveness of traditional lectures and micro-videos for teaching baclofen pump management to novice physicians.
- This study sought to advance the understanding of how instructional strategies influence learners' performance on filling and programming baclofen pumps and better appreciate their preferences.

## MATERIALS & METHODS

### Study Design:

- Mixed-method design
- RCT comparing traditional lectures vs. micro-videos for baclofen pump skill acquisition

### Participants:

- 60 board-certified physicians in pain or physical medicine & rehab
- Novice baclofen pump providers (<10 pumps refilled in 2 years)

### Procedure:

- Pre/post-intervention simulation with rubric
- Feedback via focus groups

### Statistical Analysis:

- Sample size: 30 per group
- Wilcoxon Test for pre-post score comparisons
- Descriptive stats for demographics

### Qualitative Analysis:

- Focus group interviews transcribed and coded

## RESULTS

**Table 1:** Comparison of age, gender, primary specialty, pre-intervention rubric score, and post-intervention rubric score between traditional lecture and micro-video intervention.

	Traditional Lecture N=30	Video N=30	p-value
Age, years	45 (IQR, 13)	44 (IQR, 14)	0.8887
Gender			1.0000
Female	8 (26.67%)	8 (26.67%)	
Male	22 (73.33%)	22 (73.33%)	
Primary Specialty			1.0000
Pain Management	11 (36.67%)	11 (36.67%)	
Physical Medicine & Rehabilitation	19 (63.33%)	19 (63.33%)	
Years of Practice Post-Residency	14 (IQR, 15)	12 (IQR, 14)	0.7908
Filled Baclofen Pumps (simulation or clinical encounter)			1.0000
No	20 (66.67%)	20 (66.67%)	
Yes	10 (33.33%)	10 (33.33%)	
Pre-Intervention Rubric Score	7.5 (IQR, 2.5)	7.25 (IQR, 3)	0.6898
Time Spent Using Video & Practicing, minutes	NA	30 (IQR, 11)	NA
Post-Intervention Rubric Score (1 <sup>st</sup> Post)	9.5 (IQR, 1)	10 (IQR, 1)	0.5408
Post-Intervention Rubric Score (2 <sup>nd</sup> Post)	9.5 (IQR, 1)	9.5 (IQR, 0.5)	0.1893

IQR=interquartile range; NA=not applicable

**Table 2:** Themes and codes with the percentage of interviewees who addressed each code.

Codes	Percentage of interviewees who addressed codes	Themes
Convenience	81.7%	Micro-videos had positive impact on learners
Learner time	76.7%	
Accessibility	23.3%	
Technology barriers	18.3%	Barriers to micro-video implementation
Learner isolation	30%	
Communication barriers	33.3%	
Asynchronous	70%	Promotion of life-long learning
Opportunity for self-study	88.3%	

## RESULTS (CONT.)

### Quantitative Results:

- 38 in physical medicine & rehab physicians
- 22 in pain management physicians
- No initial score differences between groups (average score 7.5).
- Both groups significantly improved post-intervention scores ( $p < 0.0001$ ).
- No significant difference between traditional lecture and micro-video groups in post-test scores ( $p > 0.05$ ).

### Qualitative Results:

- Majority (78.3%) found both methods equally effective.
- Convenience (81.7%) and accessibility of micro-videos favored.
- 90% preferred micro-video over traditional lecture.
- Micro-videos seen as promoting lifelong learning.
- Challenges: Lack of instructor guidance, technical difficulties, and isolation for some.

## CONCLUSION

- Micro-videos are effective for knowledge acquisition among novice baclofen pump providers.
- Both traditional lectures and micro-videos have their place as effective tools.
- Learners generally prefer micro-videos, but some value personalized instructor guidance.
- Consider a blended approach combining micro-videos with instructor support to address learner preferences and enrich the learning experience.
- As medical education goes digital, ensure learners receive proper support and guidance.