JOURNAL OF CONTEMPORARY CHIROPRACTIC

DEVELOPING STUDENT EXPERIENCE: CREATION OF A PHYSIOTHERAPY PRACTICE LAB

Marc Lucente, DC, MA, DIANM,[1] Sean Norkus, DC, MS, DIBCN, DIBE[1]

ABSTRACT

Objective: Chiropractic students expressed a desire for more "hands-on" learning opportunities regarding physiotherapies. Outpatient clinic faculty reported dissatisfaction with student abilities in the delivery of both active and passive care modalities. A physiotherapy practice lab was designed to offer students a new learning opportunity.

Methods: The practice lab was made available to students early in the curriculum before entering outpatient clinic. Therapies and modalities practiced in the lab reflect those learned in active and passive care classes within the curriculum. Average practical examination scores in active and passive physiotherapy classes were analyzed both pre and post lab implementation.

Results: Positive student response was demonstrated by high usage rates of the lab, averaging over 700 student encounters per 10-week instructional term. Average practical examination scores increased by 8.92% and 3.73% for active and passive care classes, respectively. Outpatient clinic faculty have reported an increase of student abilities in the delivery of both active and passive physiotherapies.

Conclusion: The practice lab was created to improve chiropractic students' usage, understanding, and skills regarding physiotherapies. Outcomes have been positive. *(J Contemporary Chiropr 2023;6:84-87)*

Key Indexing Terms: Chiropractic; Medical education; Physiotherapy; Active Care; Passive Care

INTRODUCTION

Chiropractic educational programs, often intense and time consuming, are designed in a way that require students to overlay new material learned each term on to the foundational material previously taught. This ever-changing mental landscape requires that students both master and integrate course content as they progress through their education. (1) This, coupled with the need for repetition in skill development can be readily seen when discussing physiotherapy education within chiropractic colleges. One of the ways to ensure educational outcomes are met is through the use of skills laboratories. Skills laboratories provide students the opportunity to practice manual procedures before utilizing them in patient care, while simultaneously having an avenue for self-reflection and confidence building. (2,3)

This paper outlines the process by which a physiotherapy practice lab was created within a chiropractic education program as a result of a collaboration between both academic and clinical faculty. Throughout the history of healthcare education, collaborations between academic and clinical institutions have existed to provide the best training for future practitioners. (4) While this level of collaboration is frequently studied inter-organizationally, we outline

[1] Palmer College of Chiropractic, Florida Campus

Table 1. *Categories of care.*

ACTIVE CARE	PASSIVE CARE
Muscle stretching/strengthening	Electrotherapy
Wobble board exercises	Therapeutic laser
Proprioceptive neuromuscular facilitation	Instrument Assisted Soft Tissue Mobilization
Condition specific rehabilitation	Ultrasound

an attempt to create a stronger partnership between academic and clinical faculty within the same college. Students at Palmer College of Chiropractic's Florida campus had expressed a desire for more "hands-on" learning opportunities with physiotherapy modalities, while faculty clinicians voiced areas of perceived student shortcomings regarding the utilization in outpatient clinic of physiotherapy modalities in 2 subcategories, active care and passive care. Faculty clinicians felt students would benefit from increased practice time in both subcategories before entering outpatient clinic. Specific items within each subcategory have been included in Table 1.

A physiotherapy practice lab was created with the goal of increasing student contact time and proficiency with the therapies and modalities most commonly utilized within a typical chiropractic practice. As a surrogate outcome of the process, student physiotherapy Objective Structured Clinical Examination (OSCE) scores were analyzed to measure effects of the implementation of the lab on student performance.

Laboratories that offer students the opportunity to train and practice in a low stress environment before patient care have long been utilized within education. (5) In such environments, the skills needed for utilization in future practice can be taught, honed, and examined by instructors until demonstrated at a level required for adequate patient care. (5-7)

METHODS

Students in quarters 7 and 8 of a 13-quarter curriculum were able to use the lab twice per week for 90 minutes after classes for the duration of each instructional term. 7th quarter students were able to further practice therapies taught in the 7th quarter Active Care class such as functional exercises, proprioceptive neuromuscular facilitation stretching, core stabilization, and proprioceptive training. 8th quarter students were able to practice modalities taught in the 8th quarter Passive Care class such as cryotherapy, thermotherapy, electric stimulation, ultrasound, phototherapy, and instrument assisted soft tissue mobilization. 9th quarter students who had already successfully completed the active and passive care classes were given the opportunity to serve as teaching assistants. Average OSCE scores in active and passive physiotherapy classes were analyzed both pre and post lab implementation. This project was ruled exempt by the Institutional Review Board (IRB) of Palmer College of Chiropractic.

RESULTS

Positive student response has been demonstrated by high usage rates of the lab, averaging over 700 student encounters per 10-week instructional term. Average OSCE scores for the two terms preceding the introduction of the physiotherapy practice lab were 87.47% for active care and 88.89% for passive care. Average OSCE scores for the 2 terms following the introduction of the lab were 96.39% for active care and 92.62% for passive care. Increases of 8.92%

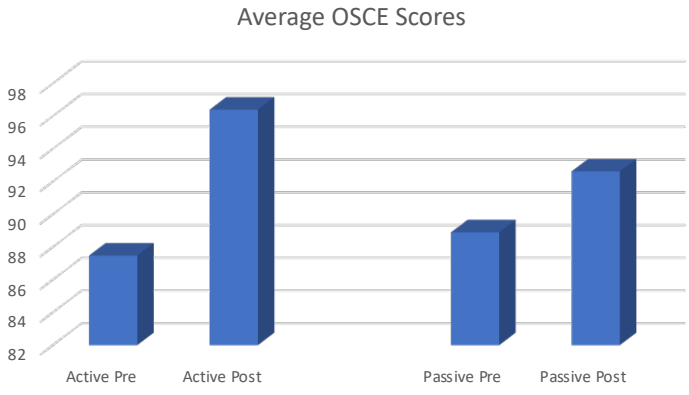

Figure 1. *OSCE scores.*

and 3.73% for active and passive care, respectively, demonstrated in Figure 1. Furthermore, once classes that had experienced the new physiotherapy practice lab matriculated to outpatient clinic, anecdotal feedback from faculty clinicians expressed an increase of student abilities in the delivery of both active and passive care therapies and modalities.

DISCUSSION

Education, like society itself, is continuously evolving. This consistent change requires that educators also develop new methods within organizations to adequately prepare students for their post-educational lives. (8) If these instructional innovations can positively affect participants within the organizations, the change becomes successful on a variety of levels, while simultaneously maximizing organizational resources. (9) As the needs of the worldwide healthcare stage change and morph, both students and faculty capable of innovation are required. (10,11)

This practice lab was able to successfully demonstrate a wide array of these characteristics with measurable outcomes. One such aspect was the secondary outcome of student OSCE performance in both active and passive care courses. While the average score for active care courses increased by over 10 points, compared to a 3-point increase in passive care, pre-implementation active care scores were lower to begin with when compared to those of passive care.

The inclusion of a peer mentorship aspect of this project is also beneficial in that peer mentorship improves performance socially, academically, and psychologically, while simultaneously exerting a positive effect on student participants. (12) These benefits run in tandem with the opportunity that the lab experience provides to allow students a chance to better integrate the therapeutic concepts discussed in the didactic portion of their education. As students learn when to apply joint manipulation throughout their education, this lab provides an opportunity bridge to connect the therapeutic value of physiotherapies as ancillary tools that support the chiropractic adjustment. Providing students the chance to develop their skills in realistic environments has been shown to decrease future practice anxiety, while also enhancing the performance of skills and overall learning.(13,14) As this practice was performed on peers, and is thus considered to be low fidelity practice, it serves as an intermediate step to link the classroom to actual patient care.(15-17)

Limitations

Using OSCE scores as an outcome is a post hoc analysis of institutional data and may not allow for a more accurate measure of student ability in outpatient clinic. As the study examined data from only 2 terms before and two terms after implementation of the practice lab, a cohort effect cannot be ruled out and future research with a larger sample size is warranted with statistical analysis to determine significance. Furthermore, faculty clinician feedback of improved student ability is merely anecdotal. Finally, the analysis is limited to a single site and the results may not be generalizable to other educational institutions.

CONCLUSION

The goal of creating the practice lab was to improve chiropractic students' use, understanding, and skills regarding physiotherapies through a new learning opportunity while simultaneously increasing "hands-on" exposure. Positive student response was demonstrated through high rates of participation, and faculty clinicians reported increased student ability with physiotherapies upon matriculation to outpatient clinic. After implementation of the lab, practical examination scores in both active and passive care classes increased.

REFERENCES

1. Krupp S, Sandefur R, Pandzik R. Chiropractic academic education. Careers in Chiropractic Health Care: Exploring a Growing Field. 2017:51
2. Rossettini G, Rondoni A, Palese A, *et al*. Effective teaching of manual skills to physiotherapy students: a randomised clinical trial. Med Educ 2017;51(8):826-838. doi:10.1111/medu.13347
3. Ziv A, Ben-David S, Ziv M. Simulation based medical education: an opportunity to learn from errors. Med Teacher 2005;27(3):193-199 doi:10.1080/01421590500126718
4. Taylor SM, McMenamin PJ, Hilliard MJ. Collaborating to integrate education and practice: a model of a physical therapy academic–clinical partnership. J Phys Therap Educ 2022;36(2):139-145. doi:10.1097/JTE.0000000000000220
5. Bugaj TJ, Nikendei C. Practical clinical training in skills labs: theory and practice. GMS J Med Educ 2016;33(4):Doc63. doi:10.3205/zma001062

6. du Boulay C, Medway C. The clinical skills resource: a review of current practice. Med Educ 1999;33(3):185-91. doi:10.1046/j.1365-2923.1999.00384.x

7. Bradley P, Postlethwaite K. Setting up a clinical skills learning facility. Med Educ 2003;37:6-13

8. Serdyukov P. Innovation in education: what works, what doesn't, and what to do about it? J Res innovative Teaching Learning 2017;10(1):4-33

9. Anderson N, Potočnik K, Zhou J. Innovation and creativity in organizations. J Management 2014;40(5):1297-1333. doi:10.1177/0149206314527128

10. Page T. Notions of innovation in healthcare services and products. Int J Innovation Sustainable Develop 2014;8(3):217-231

11. Patterson F, Zibarras LD. Selecting for creativity and innovation potential: implications for practice in healthcare education. Adv Health Sci Educ 2017;22(2):417-428. doi:10.1007/s10459-016-9731-4

12. Lorenzetti DL, Shipton L, Nowell L *et al*. A systematic review of graduate student peer mentorship in academia. Mentoring Tutoring: Partnership in Learning 2019;27(5):549-576.

13. Roberts F, Cooper K. Effectiveness of high-fidelity simulation versus low-fidelity simulation on practical/clinical skill development in pre-registration physiotherapy students. JBI Database Systematic Rev Implementation Reports 2019;17(6):1229-1255. doi:10.11124/jbisrir-2017-003931

14. Chattoo C, Dennis J. Intensive-care unit training for physical therapy students: use of an innovative patient simulator. Acute Care Perspect 1997;5(4):7-12

15. Roberts F, Cooper K. Effectiveness of high-fidelity simulation versus low-fidelity simulation on practical/clinical skill development in pre-registration physiotherapy students: a systematic review. JBI Evidence Synthesis 2019;17(6):1229-1255

16. Efstathiou N, Walker WM. Interprofessional, simulation-based training in end-of-life care communication: a pilot study. J Interprofessional Care 2014;28(1):68-70

17. Fisher KA, Shobeiri SA, Nihira MA. The use of standardized patient models for teaching the pelvic floor muscle examination. Urogynecol 2008;14(5):361-368