



Harnessing the Near-Peer Effect in Anatomy Education

R. Buch¹ · M. Tran¹ · J. Hinojosa¹ · D. Wooten¹ · S. Gokaslan¹ · D. Moeller¹ · M. Loomis¹ 

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Abstract

Benefits of near-peer teaching are well-documented, but its time requirements can be prohibitive. We integrated the near-peer effect into a clinical anatomy course with weekly student-developed handouts vetted by faculty to provide an element of near-peer teaching without the burden of extra time.

Keywords Near-peer · Clinical anatomy · Histology · Embryology · Radiology

Clinical anatomy provides medical students with foundational concepts that are essential for their becoming good physicians and it carries a heavy load of material [1]. Near-peer teaching is a documented means of facilitating student mastery of this material [2, 3]. It has been found to help students get close to their senior classmates and share in generational knowledge [4]. Feeling more relaxed while interacting with their peers, students ask questions more freely and develop independent learning skills [5]. Near-peer teaching of anatomy has been used effectively to prepare students for clerkship rotations; however, such teaching has involved a significant amount of time, space, and human resources [6]. With the time allotted for clinical anatomy in medical school becoming increasingly restricted, student-directed activities and small group sessions can be difficult to integrate into an existing curriculum already filled with lectures and laboratory dissections. Considering this, we developed a method of implementing the near-peer effect without an undue burden on curricular time. Since the subjects of histology, embryology, and radiology within the anatomy course were traditionally some of the more difficult for our students, these subjects were targeted for near-peer supplementation. Weekly summary handouts covering histology, embryology, and radiology were developed by a second-year medical student who had performed well in the course the year before. The handouts, based on the course lectures, were constructed in

advance and vetted by the clinical anatomy faculty. A total of eight handouts were delivered on a weekly basis throughout the nine-week course. The handouts were available to all first-year students through the online course platform and had consistently high download rates. Two second-year students were the leads for the near-peer interactions, occasionally supplementing the handouts with a brief presentation during the anatomy lab after which students were seen eagerly asking questions of their second-year peer. Our near-peer leads also reported frequent informal interactions outside the lab regarding the handouts. Due to instructor changes, the number of exam items identical to the previous year was lessened, limiting our data, but performance on the exam items that could be compared demonstrated a small though significant improvement. The minimal curricular time needed to implement this near-peer element was key, both for the logistics of our implementation and the optimization of student participation. While near-peer session participation has been associated with improved academic performance, its increased time commitment has also been associated with the poorer performing students, those in most need of assistance, not participating [7]. Vetting of the near-peer teaching was also important, as naturally occurring or “unregulated” near-peer teaching, difficult to gauge or control, can lead to students sharing incorrect information. Even when such sharing is completely accurate, it is not universally experienced, at times being shared through an online platform that not all students have access to or know how to find. The model of a vetted near-peer handout available to all students is meant to offset these difficulties. Such handouts also avoid the difficulty of faculty-developed review sheets which are often seen by students as guides to

✉ M. Loomis
mx1107@shsu.edu

¹ Department of Clinical Anatomy, Sam Houston State University College of Osteopathic Medicine, 925 City Central Ave, Conroe, TX 77304, USA

what will be on the exam. Near-peer summary handouts, vetted by faculty, are an easy and time-conscious way of implementing the near-peer effect in an anatomy curriculum. Future studies will be required to gather sufficient data on the efficacy of such implementation.

Author Contribution RB and ML conceived and designed the project. RB, ML, and MT wrote initial draft and revision. JH, DW, SG, and DM vetted material to be used in student handout, and all authors reviewed and gave final approval of manuscript.

Declarations

Conflict of Interest The authors declare no competing interests.

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