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Viewing pre-lab gross anatomy demonstration videos correlates positively with student performance when total dissection time is limited by Covid-19 restrictions

[Andrew Deane](#),¹ [Rebecca Wisner](#),² and [Jessica Byram](#)¹

¹ Anatomy, Cell Biology & Physiology, Indiana University School of Medicine, Indianapolis IN

² Indiana University School of Medicine, Indianapolis IN

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Abstract

Introduction

Although COVID-19 related teaching restrictions have impacted all aspects of medical curricula, gross anatomy has been disproportionately affected. To decrease in-person contact many medical schools have adapted their curricula by reducing or eliminating gross dissection. The Indiana University School of Medicine (IUSM), believing gross dissection to be a critical foundational curricular component, retained cadaveric dissection in 2020 but in a reduced capacity (i.e., fewer labs and fewer student per lab). In an effort to address this shortfall in dissection experience and to increase student preparedness, 24 pre-lab demonstration videos covering 26 individual dissections were prepared for the 2020 cohort.

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Research Aim

To determine if individual student performance is correlated with viewing pre-lab videos.

Methods

Pre-lab videos were available to all first-year students at IUSM (n=378 students across 9 campuses). Viewership data (total views, total duration) were aggregated from the Kaltura online video platform. Student exam performance data (practical and written exams) were compared to viewership data using the Pearson correlation test.

Results

91.5% of student course evaluation respondents (n=329) report that they viewed pre-lab videos. Pearson's correlation tests revealed a positive correlation between viewership activity and overall performance on all exams. The strongest correlation (0.182) was between total views and overall practical exam performance. Correlation coefficients for individual block exams vary and range between 0.13 (back, upper limb and thorax) and 0.253 (Head and Neck). Likewise, correlation coefficients varied across campuses with several campuses exceeding the statewide values.

Conclusion

Pre-lab videos are an effective tool for exporting traditional lab-based learning from the lab environment when access and dissection time are limited. Their most immediate and significant impact is on practical exam performance although positive correlations between viewership data and performance on written exams with NBME-style questions suggests pre-lab videos effectively reinforce foundational anatomical relationships and concepts. While not directly addressing questions of overall cohort performance, particularly when dissection access is not limited, future directions for this research will include direct comparisons of overall class performance in multiple cohorts with and without full dissection schedule and with or without the aid of pre-lab videos. Likewise, student evaluation comments suggest that pre-lab videos were used in a variety of contexts (i.e., lab prep, peer-teaching,

general study). An online survey exploring how students use the pre-lab videos was sent to the 2020 cohort at course end to better understand how students are using them.

Implications

Medical educators are increasingly asked to teach more with fewer contact hours. COVID-19 has exacerbated this situation. This study provides new data suggesting that pre-lab videos are an effective tool for exporting traditional lab-based learning when lab contact time is decreased.