Dramatization of Starling Forces: An Interactive Learning Approach
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Introduction
VTCSOM is a modern hybrid medical school where student learning is facilitated through Active Learning approaches. When students are actively engaged during the teaching/learning process it promotes long-term learning (1). Furthermore, in regard to physiology courses, low retention of material can, in part, be attributed to passive lecturing (2).

Goal
To create a novel kinetic teaching approach to promote long-term learning and retention by engaging students as they physically mimic the movement of fluid in response to Starling Forces (Fig 1).

Methods
- 26 students volunteered to participated and filled out a pre-activity survey.
- Several scenarios, ranging from simply evaluating numerical changes in Starling Forces to clinically-based vignettes, were used to illustrate the concepts of filtration and reabsorption within the microcirculation (Fig 1).
- Students were instructed to represent the movement of fluid in response to the different scenarios presented (e.g. edema, Fig 2) as they physically moved to mimic reabsorption into the capillary or filtration into the interstitium.
- A post-activity survey to assess knowledge acquisition and activity efficacy was administered.
- The surveys contained a combination of 11 short answer, multiple choice, and T/F questions regarding basic physiology, pathology, and higher level application of the effects of Starling forces on the microcirculation. The question order was randomized between pre and post activity surveys (Fig 3 and 4).

Results

Performance by Question

Discussion/Conclusion
Our preliminary data shows that this dramatization is effective in teaching an important concept, Starling Forces, to first year medical students, showing a statistically significant improvement.

Limitations and Future Directions
Due to the small sample size, the activity needs to be tested with larger group to better evaluate activity effectiveness. Next, we will compare performance outcomes between two groups: Control Group in which students are taught via a traditional lecture and the Activity Group in which this kinetic learning approach is used. Results will be compared to determine if this approach is superior to traditional teaching methods.

References

Figure 1: Starling Forces of the microcirculation

Figure 2: Example of a clinical scenario

Figure 3: Overall Student Performance

Figure 4: Pre and Post activity performance by question, including internal control (Q8) that was not covered in the activity