

## RATIONALE/NEED

- ❖ USMLE Step 1 scores are one of the most important factors considered by residency programs.
- ❖ Currently, the Brody School of Medicine (BSOM) only has one Step 1 preparatory program, Aim Higher, which is a peer-led program that focuses on answering board-style practice questions.
- ❖ While BSOM students have historically scored at or above the national Step 1 average, discipline-specific data revealed that the same students consistently performed below the national average in the area of Gross Anatomy and Embryology (GAE).
- ❖ This below-average performance may be attributed to the time lapse between when medical students complete GAE in the fall of their first year and when they take the USMLE Step 1 examination in the spring of their second year.

## METHODS

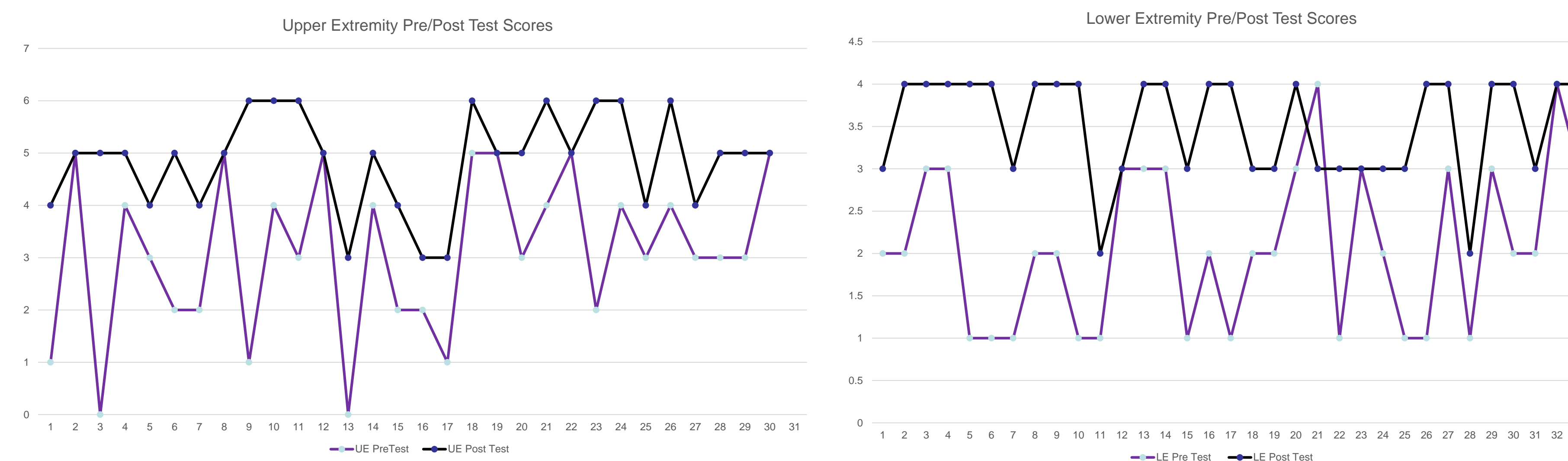
- Two one-hour peer-led gross anatomy laboratory review sessions were offered to all second-year medical students. One session reviewed upper extremity anatomy, while the other covered lower extremity topics. Both sessions were offered on six occasions and limited to 8 students (n= 33). The sessions were structured as follows:
- ❖ Pre-session assessment (8 minutes)
  - ❖ Interactive chalk-talk on the brachial plexus and/or nerve lesions (15 minutes)
  - ❖ Laboratory Stations (30 minutes)
    - ❖ Identifying nerve lesions and their clinical presentations using a prosected specimen
    - ❖ Reviewing osteology, high-yield fractures, and their associated nerve lesions
    - ❖ Comparing normal radiologic images (Plain film and CT images) to images of common abnormal pathologies
    - ❖ Using prosected joints to review ligaments, and special diagnostic tests
  - ❖ Post-session assessment (8 minutes)
- Pre- and post-session assessments consisted of 4-6 multiple-choice, board-style exam questions. Participants were asked to complete a qualitative survey to assess learner perceptions immediately after the review session. After completing Step 1, all students were asked to complete an additional survey of score performance and perceptions.

## RESULTS

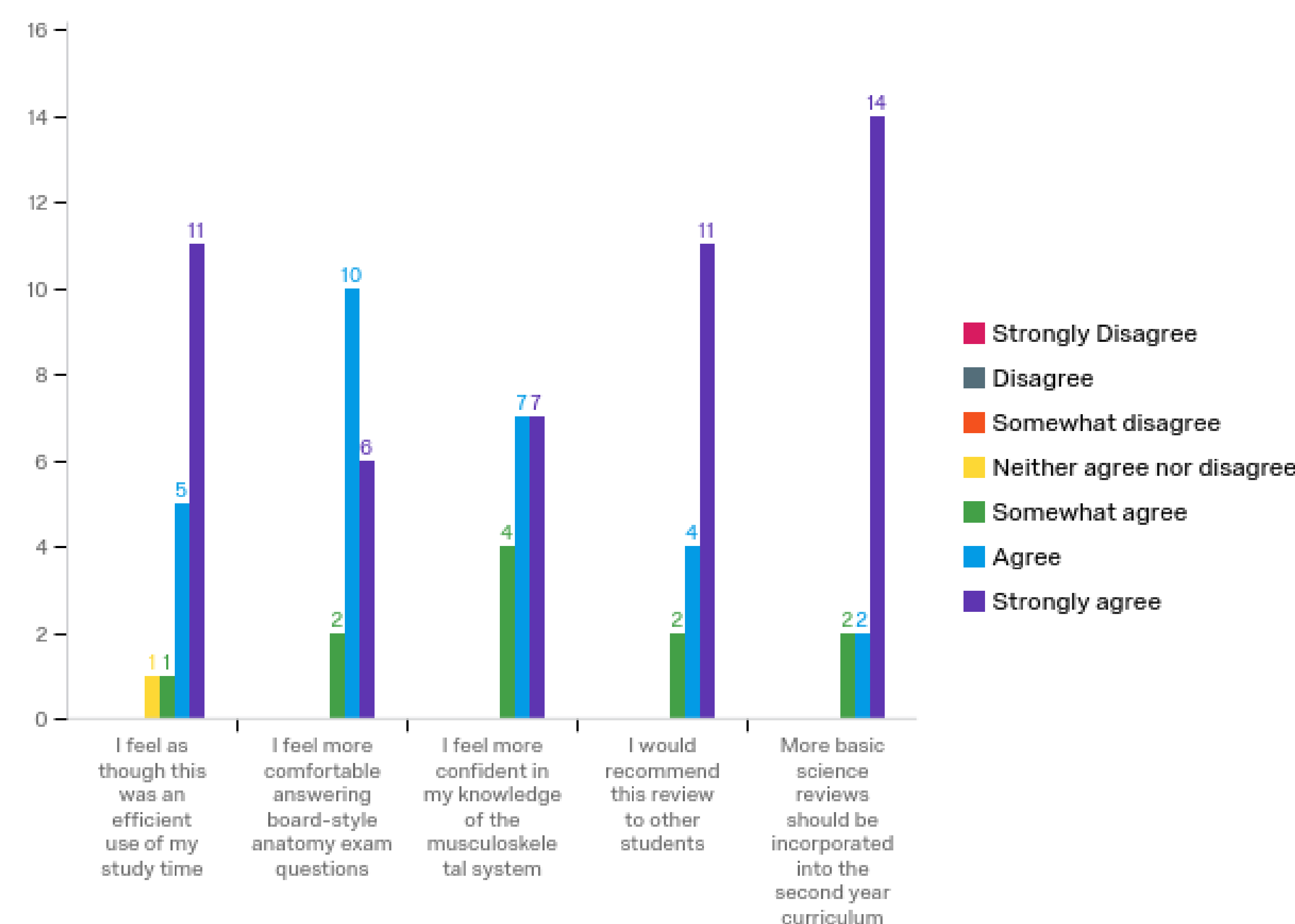
A 10-year old girl fell on to an outstretched hand while roller-skating. Physical exam shows weakness with abduction and adduction of the digits, opposition of the 5th digit, and adduction of the thumb. The patient is still able to make a fist, but has difficulty extending digits 4 and 5 completely. There is reduced sensation and tenderness to palpation over the medial aspect of the palm. Injury to which carpal bone is most likely responsible for her symptoms?

- Fracture of the scaphoid
- Dislocation of the lunate
- Avascular necrosis of the scaphoid
- Fracture of the trapezium
- Fracture of the hook of the hamate

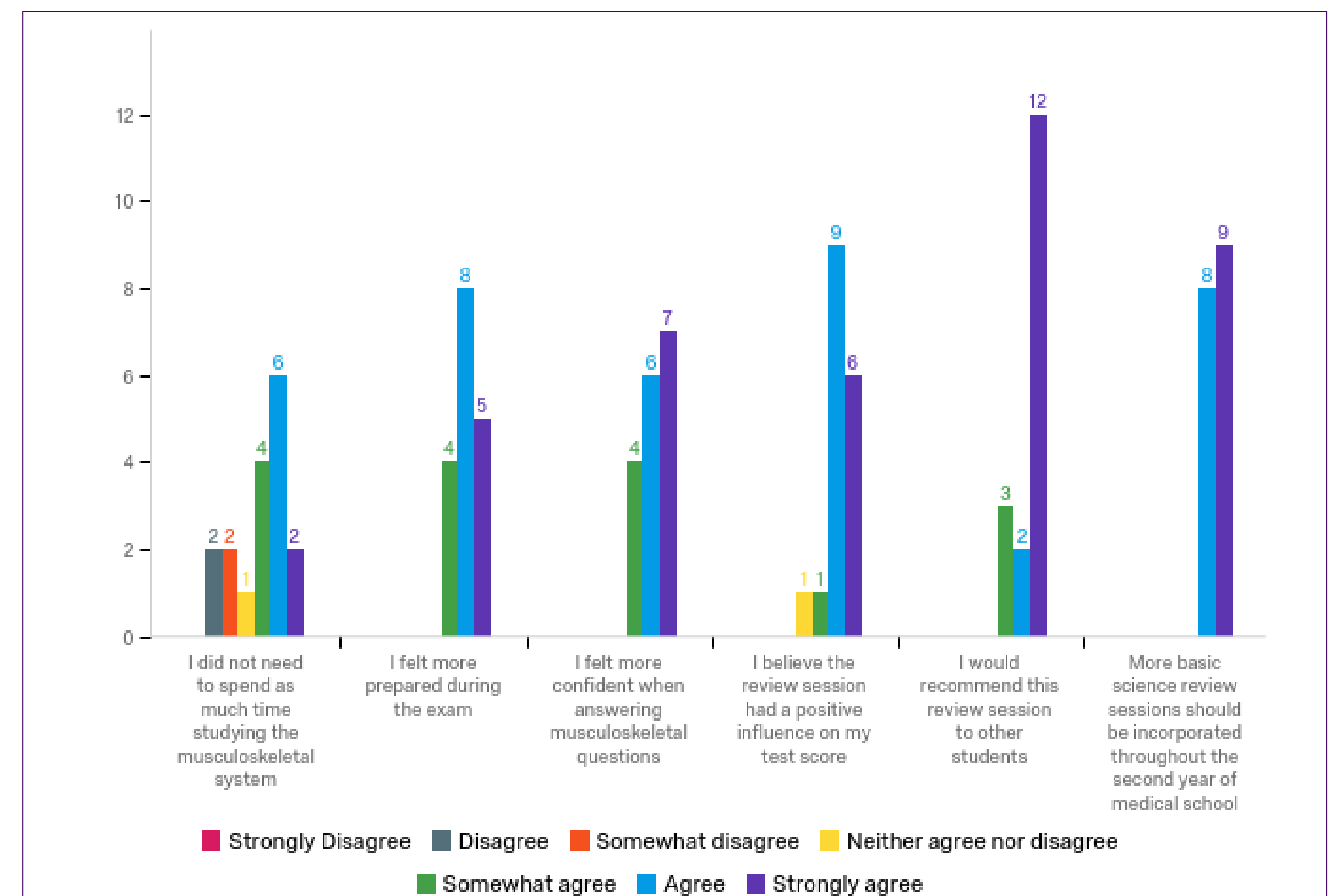
**Figure 1. Example of a pre-/post test question.** Clinical board-style questions were used to assess learner knowledge before and after the review session.



**Figure 2. Learner performance on pre- and post-session knowledge assessment.** Individual pre- and post-session scores plotted. UE pre- average on a 6 question test:  $3.10 \pm 0.57$ ; Post- average:  $4.87 \pm 0.35$ . LE pre- average on a 4 question test:  $2.09 \pm 0.34$ ; Post- average:  $3.52 \pm 0.22$



**Figure 3. Learner Perception Survey Results.** Participants perceived the review sessions in a positive light, citing improved confidence in content and ability to answer anatomy-based board-type questions, as well as viewing the sessions as an efficient uses of study time. Response rate for this survey was 54.5%.



**Figure 4. Learner feedback after taking USMLE Step 1.** A survey was sent to participants who had completed Step 1 to assess changes in their perceptions of the session after the exam. Response rate for this survey was 57.6%.

## LESSONS LEARNED.

- ❖ After the review students felt more comfortable and confident answering board-style exam questions on the musculoskeletal system.
- ❖ Average post-test scores improved by 57.1% and 68.4% following the upper and lower extremity review sessions respectively
- ❖ There were no significant changes in average Step 1 scores between participants and non-participants ( 235.86 vs 236.83)

## FUTURE DIRECTIONS

- ❖ Feedback from participants can be used to improve sessions, and expand their content coverage
- ❖ Future studies could look at the impact of these reviews on student performance on musculoskeletal portions of the USMLE Step 1

## ACKNOWLEDGEMENTS

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