

Background

Podcasting is an increasingly popular medium for medical education especially in the remote learning boom following the COVID-19 pandemic with around a three-fold increase in podcast related results on PubMed from 2009 to 2021.¹ Although there is good evidence to suggest that podcasts improve knowledge compared with no-intervention, there is limited evidence evaluating podcasts against other learning modalities, especially reading-based interventions.² The goal of this study is to compare immediate knowledge acquisition with the use of an audio recording compared with reading an article of the same material. The topic of spondyloarthropathies was selected as this was the area Brown internal medicine residents scored the lowest on in the 2021 and 2022 in training exams.

Methods

Topic selection and material preparation

2021 and 2022 in training exam data was reviewed to find the topic with the lowest percentage of correct answers by Brown internal medicine residents. Subsequently, a 2.5-page document was created to review this topic which included one clinical image. This review was then used to create a single-voice audio recording that covered the same material.

Assessment of learning tool

Participants were randomized on an alternating basis matched by post-graduate year to review either the written material or the audio recording. Acquisition of knowledge was then assessed with an 11-question quiz. The quiz also asked how long it took readers to review the written article, whether listeners performed other activities while listening to the recording, and whether the participant would have preferred reading or listening to the information.

Statistical analysis:

Data was visually estimated to follow a normal distribution. Two-tailed unpaired student t-test was used to evaluate the null hypothesis that there was no difference between the groups.

Results

- On the 2021 and 2022 in training exam, the rheumatology topic that Brown internal medicine residents scored the lowest in was spondyloarthropathies with 54% of questions correct, which was 2% below the national average.
- 11 subjects completed the assessment after listening to the podcast, and 7 completed it after reading the article.
- The average amount of time reviewing the reading material was 7 minutes and 34 seconds, which was 1 minutes and 18 seconds shorter than the podcast length.

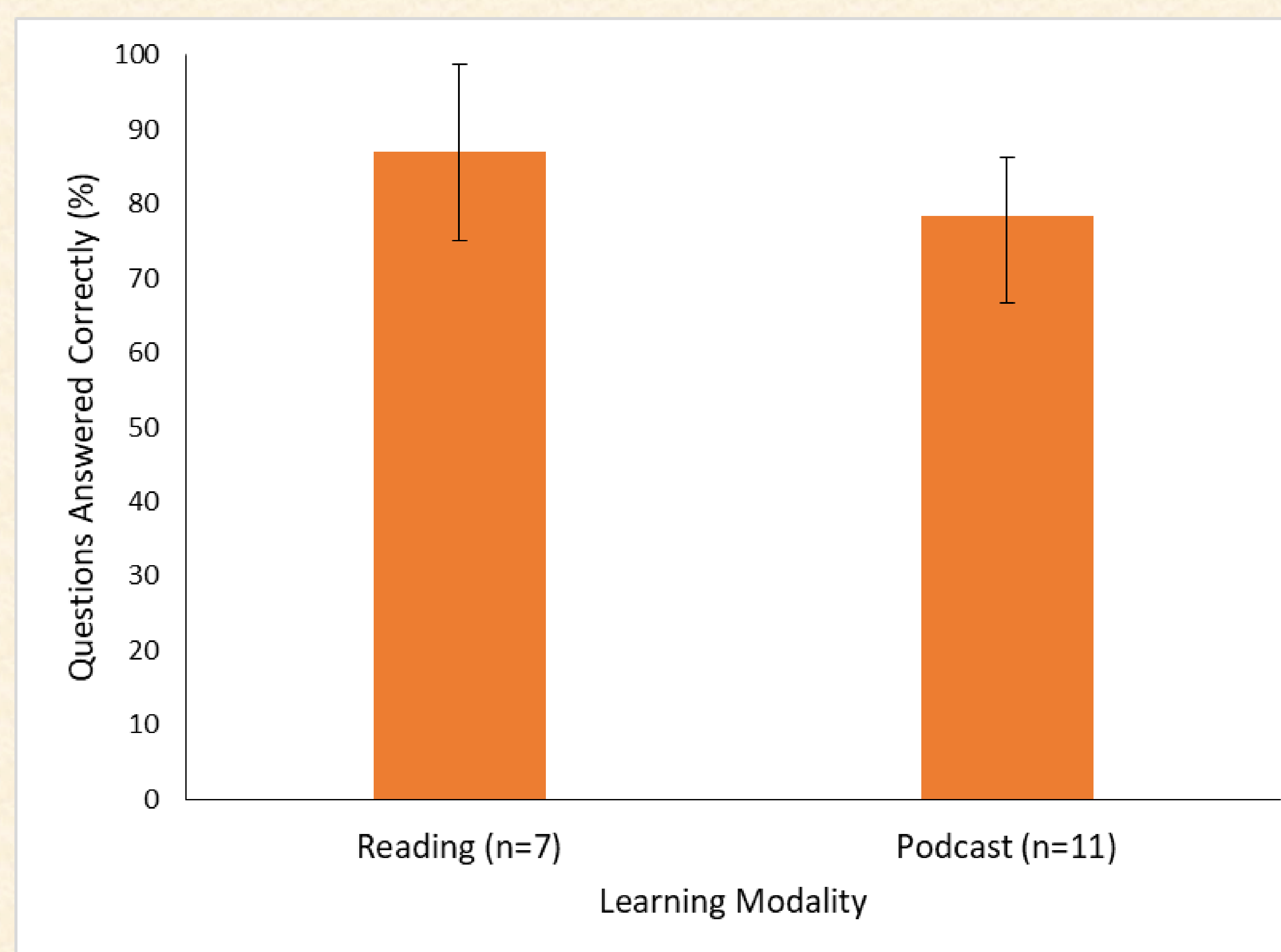


Fig 1: Quiz performance in reading group versus podcast group. Error bars represent standard deviation. The reading group scored on average 8.5% higher than the podcast group (t-test $p < 0.05$).

- 10 out of 16 participants preferred the reading modality, while 4 preferred audio recording, and 2 had no preference.
- There was no significant difference in quiz performance between subjects assigned to their preferred learning modality compared with non-preferred activity.
- Similarly, there was no significant difference in quiz performance between podcast participants who did other activities while listening versus those who did not.

Discussion

- This study suggests that reading activities result in more knowledge acquisition than listening to an audio recording on the same material.
- Furthermore, being assigned to the non-preferred intervention did not significantly worsen quiz performance. In hindsight, preferring one material over the other does not answer the question of "visual" or "auditory" learner status which could lead to a different outcome.
- Strengths of this study include randomization of subjects and comparing the podcast to a different intervention group.
- Weaknesses of this study were that it was a small trial, there was no baseline data to account for previous knowledge, and the absence of repeat quizzing limits the ability to assess for knowledge retention.
- Future studies could compare learning outcomes and enjoyment of a one host, lecture style podcast compared with a two host, discussion podcast.
- Although podcasting was outperformed by reading, there may be settings where podcasting is easier to absorb (such as driving or after exhaustion from reading) and still offers a valuable tool for clinician educators.

Selected References

- Okonski R, Toy S, Wolpaw J. Podcasting as a Learning Tool in Medical Education: Prior to and During the Pandemic Period. *Balkan Med J.* 2022
- Cho D, Cosimini M, Espinoza J. Podcasting in medical education: a review of the literature. *Korean J Med Educ.* 2017