Implementing a mental practice training protocol to prevent decay of surgical skills during Covid-19 and beyond

Aoife Naughton, Aisling Higham, Ariel Ong, Sher Aslam, Niamh Stone

Oxford University Hospitals NHS
NHS Foundation Trust

Introduction

Time away from operating can lead to surgical skills decay, increased surgeon stress and potentially increased complications for patients (Ho et al., 2020).

Mental Practice (MP) is a technique that involves cognitive rehearsal of a skill in the absence of overt physical movement. Its effectiveness in enhancing psychomotor performance has been demonstrated in activities requiring complex motor skills such as sports (Cocks et al., 2014).

We aimed to evaluate its utility in optimising and maintaining ophthalmic surgical skills, which would have significant implications for patient safety in the longer term.

Methods

We conducted an hour-long training session for Thames Valley ophthalmologists via webinar, comprising:

- an introduction to the concept of mental practice
- video of a routine cataract case overlaid by a narrated mental practice script adapted from Lin et al[3]
- Under the guidance of a trainer, participants were then instructed to mentally rehearse each step of the surgery with the aid of the mental practice script

A modified version of a validated mental imagery questionnaire was completed before and after the session.[4]

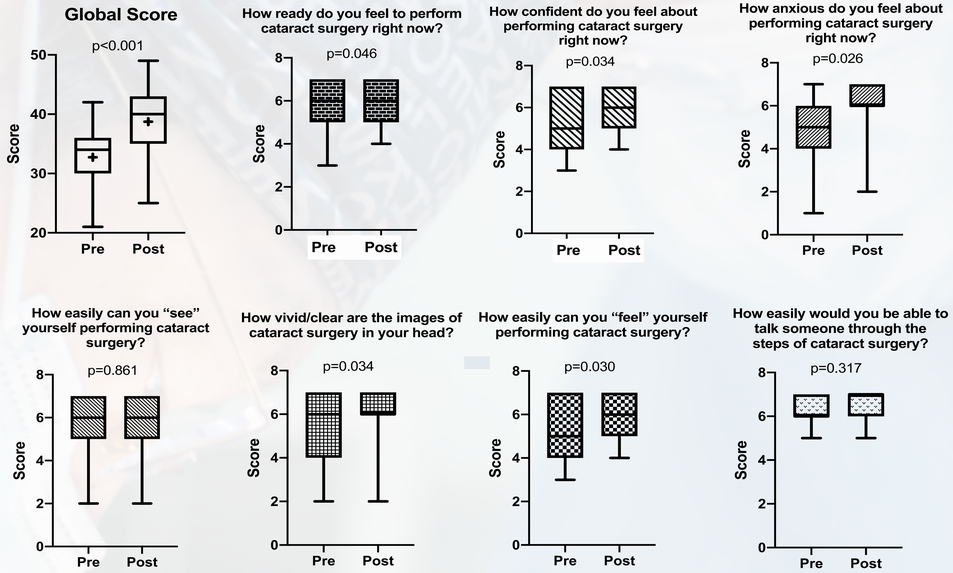


Figure 1. Mental Imagery scores before and after mental practice training session

Results

15 ophthalmologists

- 73% female
- Median 31 years old
- 80% reported a recent break of ≥4 weeks from surgery, with increased complication rates (42%) and operating time required (75%) on resuming surgery

Results from the training session (Figure 1):

On a scale of 1-7, participants rated the session as very helpful in preparing them to perform surgery (median 6, IQR 5-6.5), and reported being very likely to utilise this skill to enhance training during the Covid-19 pandemic (median 6, IQR 5-7) and beyond (median 6, IQR 4.5-6.5).

Conclusions

This is the first study to evaluate the use of mental practice in ophthalmic surgery. It is a promising adjunct to surgical training, and is time, resource and cost-effective, while adhering to current social distancing guidelines.

We hypothesise that regular sessions may prevent decay of surgical skills while improving confidence levels and reducing complications for patients during cataract surgery.

Mental practice training for more infrequently performed procedures may require multiple training sessions to improve visualisation and may lead to a more marked improvement in the pre and post training session imagery.

Future steps: Work is currently being undertaken to build on this pilot, to explore the utility of mental practice in anterior vitrectomy.

References

1. Ho, D.K.-H., Chiu, A.K.C., Tung, S.W., 2020. Restarting cataract surgery after an extended period out of training: a perspective from the United Kingdom. Eye (Lond). https://doi.org/10.1038/s41433-020-01224-z
2. Cocks, M., Moulton, C.-A., Luu, S., Cil, T., 2014. What Surgeons can Learn From Athletes: Mental Practice in Sports and Surgery. Journal of Surgical Education 71, 262–269. https://doi.org/10.1016/j.jsurg.2013.07.002
3. Lin JC, Paul AA, Scott IU, Greenberg PB. Integrating Mental Practice into a COVID-19 Appropriate Virtual Reality Cataract Surgery Course for Ophthalmology Residents. *Journal of Academic Ophthalmology*. 2020;12(2):e298-e300. doi:10.1055/s-0040-1721068
4. Arora S, Aggarwal R, Sevdalis N, et al. Development and validation of mental practice as a training strategy for laparoscopic surgery. *Surg Endosc*. 2010;24(1):179-187. doi:10.1007/s00464-009-0624-y