

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

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## Introduction

Surgical skills decay often occurs following prolonged periods without practice.<sup>1</sup> The Covid-19 pandemic has necessitated a protracted reduction or cessation of elective surgical activity, resulting in increased stress and reduced confidence levels for surgeons.<sup>2</sup> Mental practice is a mental simulation process, which combines visual, auditory and kinaesthetic cues to rehearse a skill without external input, akin to a 'simulation centre of the mind'. It has been used in a variety of surgical specialties to good effect,<sup>3</sup> but has heretofore not been studied in ophthalmic microsurgery. We describe a model for designing and conducting a mental practice training programme for ophthalmic surgery using phacoemulsification as a proof of concept.

## Methods

We conducted an hour-long training session to ophthalmologists in the Thames Valley deanery 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<sup>4</sup>
- ❖ 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<sup>5</sup>

## Aim: To implement a mental practice training protocol for cataract surgery

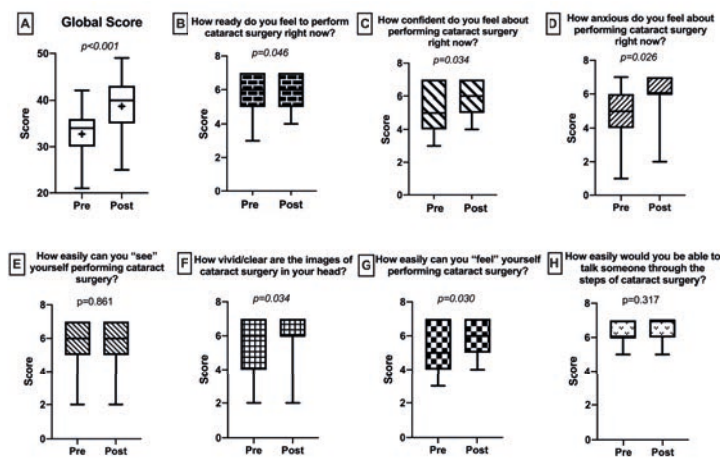
## Results

- ❖ Fifteen ophthalmologists (73% female, median 31years old; 40% junior trainees) participated after providing written informed consent
- ❖ 80% reported a recent break of  $\geq 4$  weeks from surgery, with increased complication rates (42%) and operating time required (75%) on resuming surgery
- ❖ Following the training session, participants had
  - ❖ a significant improvement in global imagery score (figure 1)
  - ❖ were better able to "see" and "feel" themselves performing cataract surgery (figure 1)
  - ❖ reduced anxiety levels ( $p=0.046$ )
  - ❖ increased confidence ( $p=0.046$ )
- ❖ 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).
- ❖ Reliability analyses were used to evaluate internal consistency within the questionnaire (Cronbach's alpha 0.873 pre- and 0.901 post-training), and Wilcoxon signed-rank tests to assess the effect of the training session on mental imagery

Figure 1: Participants' self-reported mental imagery scores before and after the mental practice training session.

1A – Global score (summation of all components of the mental imagery questionnaire)

1B to 1H – Individual components of the mental imagery questionnaire.



## 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.
- ❖ The high baseline and post mental practice training session imagery scores in our cohort suggest they are well equipped to perform regular and frequent sessions of mental practice of routine cataract surgery, which is recommended to maximise its benefits.
- ❖ 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

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