

Virtual trainer teaches residents cataract surgery

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The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer, a virtual training tool which helps to train physicians to perform cataract surgery, has been shown to enhance teaching in cataract surgery when compared to traditional teaching methods. The results of a multi-center study evaluating the program's effectiveness as a supplement to traditional teaching tools was published in the February issue of *Ophthalmology*.

Cataract surgery is the most frequently performed surgery in the United States on people over 65 years old, yet it is one of the most difficult surgeries to learn. John Loewenstein, M.D., Mass. Eye and Ear Associate Chief of Ophthalmology for Clinical Affairs and Vice Chair of Education for Ophthalmology, and Bonnie An Henderson, M.D., former director of Mass. Eye and Ear's Comprehensive Ophthalmology Service, developed the Massachusetts Eye and Ear Infirmary [Cataract Surgery](#) Trainer as an interactive computer program to assist ophthalmology residents in learning skills required to perform cataract surgery.

The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer allows ophthalmology residents to experience the decisions required and tasks involved in performing cataract surgery in a [virtual environment](#). Specifically, the program allows the learner or resident to click on actions involved in cataract surgery, view the animated actions on the computer screen and receive feedback as needed. Residents receive the benefit of having access to tips related to the specific surgical task they are performing, or utilizing the option of browsing to learn more about

related topics. The program offers a library with resources to the learner, including commentary from experts, surgeons and professors in ophthalmology and video demonstrations. The program also includes video clips of actual surgery.

Important benefits of The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer include allowing learners to practice the [cognitive skills](#) involved in cataract surgery and view the consequences of their surgical decision making in a safe, computer simulated environment. In addition, The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer allows residents to practice surgery at any time, without the need of a teacher or instructor being present. Ultimately, these benefits will be passed on to the patient. To take a look at The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer for yourself and view a demonstration, visit www.gnaritas.com/ .

To test the effectiveness of The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer program, a prospective, multi-center, single-masked, controlled trial was conducted using medical residents in the ophthalmology departments of seven academic institutions. Residents were randomized into two groups. One group received a video disc of The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer program in addition to traditional teaching in their residency program, while the other group received written teaching materials in addition to traditional teaching. Both groups took online anonymous pretests and posttests, as well as answering satisfaction questionnaires.

Results showed that there were no differences in pretest scores between the two groups. However, the group provided with The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer program scored significantly higher on their posttests. In addition, the mean difference between pretest and posttest scores for The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer group was significantly better than in

group that did not use The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer. Residents responding to questionnaires reported using The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer as being "more fun," as well as reporting that they were more likely to use a program such as The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer again compared with the likelihood of using traditional tools.

"We're pleased that the findings of this study suggest that The Massachusetts Eye and Ear Infirmary Cataract Surgery Trainer could be an effective supplement to traditional teaching. We hope that this computer simulation tool, when used as a supplement to teach residents the skills involved in cataract surgery, would better prepare residents for their experience in the operating room," said Dr. Loewenstein.

Provided by Massachusetts Eye and Ear Infirmary

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