

A Novel Open-Source 3D Printed Eye Mount (TEMPO) for the Ophthalmology Wet Lab



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Introduction:

Procuring an affordable eye mount that can stabilize a cadaveric eye in place and simulate a patient's facial contour has been an ongoing challenge in the ophthalmology simulation wet lab.

Our project utilizes 3D software and 3D printing to tackle these challenges for ophthalmologic surgical training.

Methods:

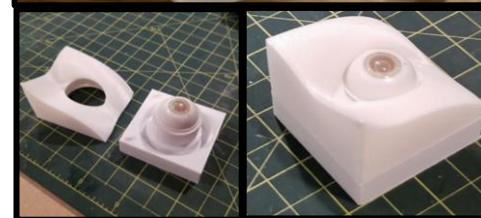
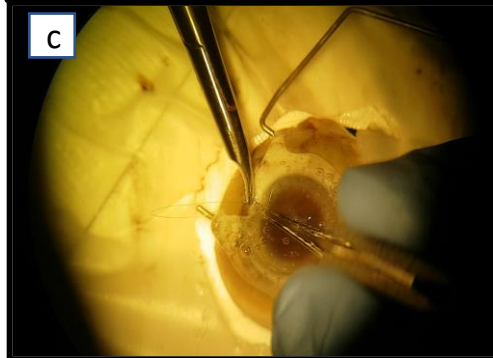
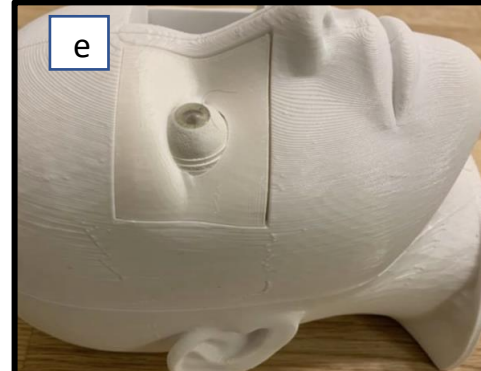
Using Autodesk Fusion 360® we designed and 3D-printed a modular device that consists of 11 pieces forming a head structure (a). OR tubing and syringes provided the vacuum necessary to affix the cadaveric eye (b).

Modular encasements were customized to accommodate non-cadaveric simulation eyes such as the SimulEye® (e).

Results and Conclusions:

TEMPO (Three-dimensional Eye Mount for Procedures in Ophthalmology) was able to hold a cadaveric eye in a stable position (c). Trainees were able to drape and practice appropriate hand positioning while corneal suturing. Overall, this model took approximately \$200CAD to print; tubing and syringes were obtained at no cost from our operating room. (QR code video) The modular nature makes individual pieces convenient for cleaning (d) replacement and also customizable to accommodate non-cadaveric eyes.

TEMPO accurately simulated facial contours of a human patient. We hope to release it as an open-source file customizable to interested trainees with appropriate software and a 3D printer.



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