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Editorial

Laboratory training – A mandatory educational tool in ophthalmology

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Surgical competence is just one part of the numerous skills an ophthalmology postgraduate trainee is expected to acquire but is the most important factor directly affecting the patient outcome. Competency-based medical education curriculum for postgraduates in ophthalmology lists various clinical and surgical skills to be acquired during postgraduate training.[1] Surgical skills training and assessment remain a critical concern; for both the trainees as well as trainers. Ophthalmology being a specialty with rapid advancements necessitating continued surgical education and a microsurgical specialty, its training faces a lot of challenges.

Training in the operating room is often unstructured and variable. Ethical concerns exist about a novice surgeon operating on a live patient. Ophthalmic surgery requires excellent hand–eye coordination. Microsurgery allows only one person to operate at a time, making it difficult sometimes to demonstrate steps and preventing the supervisor from timely interventions during moments of complication.[2,3] Most surgeries being done on awake patients make real-time feedback tricky. The trainees operate in a highly demanding environment that may affect their performance and outcome.[2] Conventionally, ophthalmology postgraduate programmes mandate a minimum number of supervised and independent surgeries (quantity), but there are no standard measures to assess how well the surgeries have been performed (quality). There is a lack of standardisation in surgical training and the objectivity of assessment and feedback.

Wet and dry laboratory training was, therefore, developed to enable trainees to acquire surgical skills under controlled settings before they could operate on patients to ensure patient safety.[2] Laboratory training provides a safe and less stressful environment, allowing the trainees to experiment with different techniques, improve their psychomotor skills, master stereoscopic vision, learn how to manage complications, and gain self-confidence; eventually improving their surgical skills with a reduced rate of complications and better visual outcome for their patients.[4,5]

Unfortunately, various studies report a lack of and or inconsistencies in such training across institutes.[6-8] There is also a general disinterest coupled with a poor trainee–teacher ratio for training.[9] Wet laboratory training uses cadaveric human or animal eyes or synthetic models to rehearse the surgical steps. Fruits and vegetables such as tomatoes, bananas, and onions are also often used as cost-effective and easily accessible alternatives to practice eye-hand coordination and ambidexterity and learn some basic surgical steps. However, all these training methods have been criticised for being unrealistic with inaccurate human tissue simulation, and lacking objective assessment. Simulation in the form of virtual reality is now being frequently used (dry laboratory training). Reasons for poor adoption of such simulator-based training are the significant costs involved and a lack of trained instructors.[10] However, training of multiple trainees over time associated with the high fidelity of the simulators and the inbuilt feedback mechanisms makes them cost-effective, efficient, and acceptable.

Laboratory training is a successful strategy for trainees to achieve surgical proficiency.[11] It can be used for assessment, feedback, and consequent effective learning. The training process should include curriculum integration, knowledge-based learning, deliberate practice, stepwise technical skills upgradation, and continuous feedback allowing transfer of the learning to the real environment.[12]

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