Validating retinal laser simulation eye

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Retinal laser simulation eye

Background

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Cataract | Published: 27 January 2009

Ori Virtual reality training improves w

O capsulorhexis: results of a random

T Elisabeth M. Feudner, Corinna Engel, Irmingard M. Neuhann,

N Schmidt & Peter Szurman

St Graefe's Archive for Clinical and Experimental Ophthalmology

this article

Luis A. Gonzalez-Gonzalez MD, MPH, Abhishek P. Payal MBBS, MPH,

Monroy MD, Mary K. Daly MD

Construct validity of

valid model for caps

Privett, Brian MD; Greenlee, Emily MD; Roge

Author Information

Journal of Cataract & Refractive Surgery: No

doi: 10.1016/j.jcrs.2010.05.020

Acta Ophthalmologica

Eye

The Scientific Journal of The Royal College of Ophthalmologists

Eye (Lond). 2013 Nov; 27(11): 1269–1274.

Published online 2013 Aug 23. doi: 10.1038/eye.2013.166

PMCID: PMC3831124

PMID: 23970027

The development of a virtual reality training programme for ophthalmology: repeatability and reproducibility (part of the International Forum for Ophthalmic Simulation Studies)

G M Saleh,[1,2,3,*] K Theodoraki,[2] S Gillan,[2] P Sullivan,[2] F O'Sullivan,[3] B Hussain,[2] C Bunce,[2] and I Athanasiadis[2]

r training on

oemulsification

. MD

37 - Issue 10 - p 1756-1761

doi: 10.1016/j.jcrs.2011.04.032

Letter to the Editor | Published: 08 October 2010

A survey of the role of virtual surgery simulators in ophthalmic graduate medical education

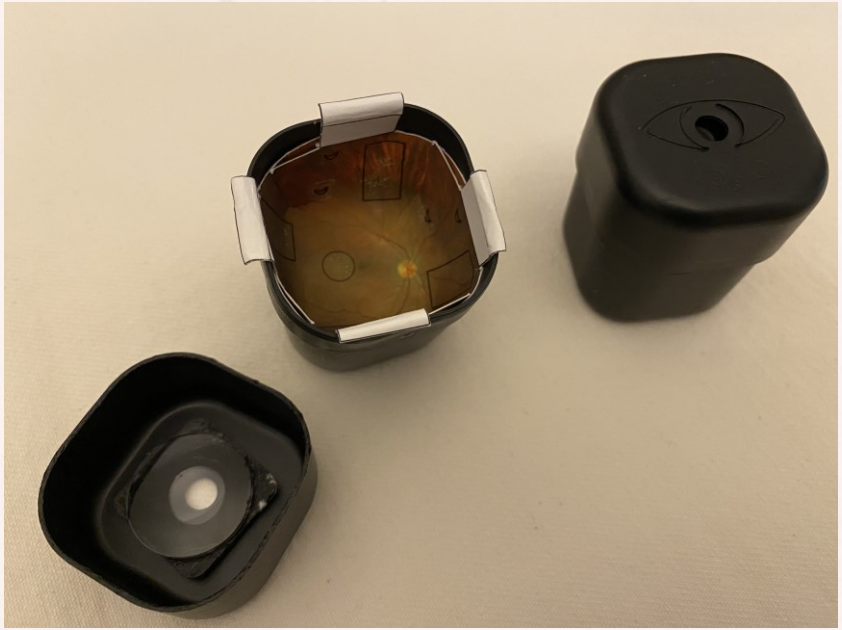
Yasir Ahmed, Ingrid U. Scott & Paul B. Greenberg

Graefe's Archive for Clinical and Experimental Ophthalmology 249, 1263–1265 (2011) | Cite this article

373 Accesses | 20 Citations | Metrics

AIM

To validate a low-cost (£4) laser simulation eye



METHODS

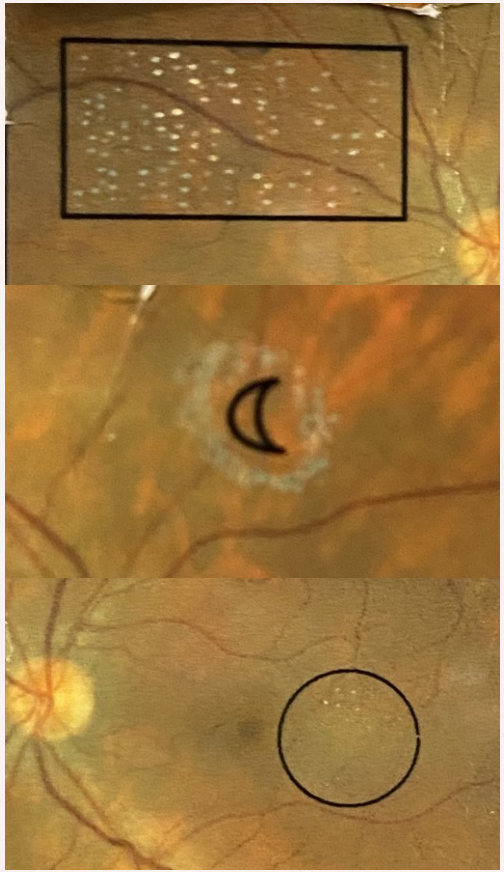
13 ophthalmologists experienced in retinal laser from 2 units (Ninewells and PAEP)

9 consultants, 1 SAS, 3 senior registrars

Participants performed:

- PRP – Slit lamp and indirect
- Retinopexy – Slit lamp and indirect
- Macular grid laser – Slit lamp

The respondents rated face and content validity of retinal laser simulation eye using 7-point Likert scale.



Questionnaire – Likert Scale 1 - 7

Face validity – How realistic is…	Content Validity – How useful is…
1. The appearance of the simulated retina 2. The appearance of the laser beam on the simulated retina 3. The appearance of laser burns on the simulated retina 4. Using slit lamp laser to apply laser burns on the simulation eye 5. Using a LIO to apply laser burns on the simulation eye 6. The movements required to apply laser burns on the simulated retina 7. Using different spot size and patterns on the simulated retina 8. Using different laser power on the simulated retina 9. Overall, how well the simulator simulates lasering the real eye	1. Learning the skills to perform Retinopexy 2. Learning the skills to perform PRP 3. Learning the skills to perform macular grid laser 4. Learning to interpret and control the laser device 5. General assessment of retinal laser skills

RESULTS – Face Validity

	How realistic?	Median out of 7	IQR
1.	Retina	6	1
2.	Laser Beam	7	1
3.	Laser Burn	6	2
4.	Using slit lamp	6	1
5.	Using indirect	6	1
6.	Hand movements	6	0
7.	Spot size/patterns	6	1
8.	Power	6	1
9.	Overall	6	0

RESULTS – Content Validity

	How useful?	Median out of 7	IQR
1.	Learning Retinopexy	7	0
2.	Learning PRP	7	0
3.	Learning Macular grid	6	1
4.	Control/interpret device	7	1
5.	General assessment	7	1

WHAT WAS GOOD?

“excellent 'dry lab' experience for anyone learning laser”

“excellent to get feel of laser”

“realistic! Safer than practising on a real eye; feasible for different learners as cheap, mobile and safe.”

“Realistic optics+ laser power performance through lens with relation to movement/focus etc”

“very realistic laser reaction (once reaction finally achieved)”

LIMITATIONS

"Higher power needed than in real life"

“Inability to apply fundus contact lens”

“LIO was slightly more challenging to get a view+ uptake in the periphery- also representative of real life LIO.”

Small number of participants – further data collection planned in other Scottish units.

CONCLUSIONS

High face and content validity

Realistic yet very affordable simulation

Useful device for ophthalmology specialty trainees learning to perform retinal laser

Thank you

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