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How to teach cataract surgery? a realistic and recent review about methods for teaching cataract surgery

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Although cataract removal is the most common elective surgery in some parts of the world, it demands uncommon motor control and concentration to be performed. According to the Accreditation Council for Graduate Medical Education–USA, residents must perform a minimum of 86 cataract surgeries during the three years of residency. However, studies have indicated that the complication rate of resident-performed cataract surgery only becomes acceptable after approximately 100 cases and the International Council of Ophthalmology outlines that specific skills, even advanced ones on cataract surgery should be mastered during residency. Growing legal and ethical concerns surrounding the use of human patients as teaching cases, along with reported increased costs in terms of experienced surgeon time and complication rates with resident-performed procedures, set alternative surgical training models and teaching methods as priorities in many residence programmes around the world. Currently, virtual-reality surgical simulators have begun assuming an important role in phacoemulsification skills training, alongside traditional wet-lab work and master-apprentice training in the operating room. Other types of cataracts surgeries, such as extracapsular facetectomy and manual small incision cataract surgery can still be done on artificial models such as Kitaro kit. Simulation of cataracts surgeries in conjunction with a standardized surgical teaching methodology that can be reproduced and compared, such as the "backward" methodology used at the University of São Paulo and in other international institutions or the OASIS (Objective Assessment of Skills in Intraocular Surgery) and similar, usually lead to lower rates of complications.

Recent Publications:

1. Tzamalís A, Lamprogiannis L, Chalvatzis N, Symeonidis C, Dimitrakos S, et al. (2015) Training of resident ophthalmologists in cataract surgery: a comparative study of two approaches. *Journal of Ophthalmology* 2015:932043.
2. Thomsen A S, Subhi Y, Kiilgaard J F, et al. (2015) Update on simulation-based training and assessment in ophthalmology: A systematic review. *Ophthalmology* 122(6):1111–1130.
3. Ament C S and Henderson B A (2014) Optimizing resident education in cataract surgery. *Curr. Opin. Ophthalmol.* 22(1):64–7.
4. Cremers S L, Ciolino J B, Ferrufino-Ponce Z K and Henderson B A (2005) Objective assessment of skills in intraocular surgery (OASIS) *Ophthalmology* 112(7):1236–1241.
5. Corey R P and Olson R J (1998) Surgical outcomes of cataract extractions performed by residents using phacoemulsification. *J Cataract Refract Surg.* 24(1):66–72.

Biography

Ana Vega Carreiro de Freitas is an Ophthalmology Resident at São Paulo Quartirão da Saúde, and graduated from the Federal University of Espírito Santo. She is highly interested in Medical Education. She is the Winner of 2017 AAO EyeWiki international contest, and has received an award in 2013, while working at the Visual Electrophysiology Lab at Glasgow Caledonian University. At that time, she received financial support from the Scottish Institute for Enterprise for the development of an educative eye model. She is an Ad-Hoc Reviewer for the journal, *Revista Brasileira de Pesquisa em Saúde* and has published in reputed journals such as the *British Journal of Surgery*.

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