

# How Many Cataract Surgeries Does it Take to be a Good Surgeon?

## *Cuántas Cirugías de Catarata Se Necesitan para Ser un Buen Cirujano?*

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### ABSTRACT

It is well known that the inexperienced surgeon can make several mistakes during surgeries in his learning period, so simulation is key to increase his learning curve, since it allows him to practice in a safe environment where he will not cause harm to third parties, besides receiving indications and feedback during the process. This way you will be able to reach a better level, with better results in practice during a real surgical scenario.

**Keywords:** Blindness, Cataract surgery, Simulator, Surgeon, Surgical skills.

### RESUMEN

Es bien conocido que el cirujano no experimentado puede cometer diversos errores durante las cirugías en su periodo de aprendizaje, por lo que la simulación es clave para aumentar su curva de aprendizaje, ya que le permite practicar en un ambiente seguro donde no causará daños a terceros, además de recibir indicaciones y retroalimentaciones durante el proceso. De esta forma podrá alcanzar un mejor nivel, con mejores resultados en la práctica durante un escenario quirúrgico real.

**Palabras clave:** Ceguera, Cirugía de catarata, Cirujano, Habilidades quirúrgicas, Simulador.

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It's a question without a straightforward answer as it relies on multiple factors, encompassing not only personal manual dexterity but also the ability to navigate through various simultaneous scenarios in cataract surgery (such as pseudoexfoliation, small pupils, synechiae, uveitis, etc.). Additionally, considering a different perspective, the surgeon should possess the skill to carry out cataract surgery in any situation, even in the absence of a phacoemulsification machine, and be proficient in performing the procedure manually.

At present, there is no widely agreed-upon consensus regarding the number of cataract surgeries required to attain a level of expertise as a surgeon. For example, in the United Kingdom, 350 cataract surgeries are required, while in the United States, most training programs require a minimum of 80 unsupervised complete surgeries. In 2010, Gupta et al.<sup>1</sup> published an article stating that with appropriate supervision, at least 50 surgeries were needed.

Balas et al.<sup>2</sup> conducted a very interesting study analyzing all the steps of cataract surgery and concluded that an intermediate level of competence is achieved after approximately 80 surgeries, while the highest level is reached after 300.

In an attempt to eliminate individual factors, which are potentially easier to address than institutional or systemic factors, what options does the medical community have to acquire, maintain, or improve their surgical skills? One solution lies in the utilization of experimental surgery labs or simulation labs, commonly known as facilities where surgical procedures can be practiced in a secure setting, without involving actual patients, until the desired outcomes are attained. At this point, Thomsen et al.<sup>3</sup> found that the learning curve is reduced, and surgical performance receives higher ratings for surgeons at an initial or intermediate level.

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There are various simulation methods available, including practicing sutures on embroidery fabric, using sophisticated mannequins, virtual reality, and more. For instance, HelpMeSee, a nonprofit organization based in New Jersey, USA, in collaboration with the Mexican Institute of Ophthalmology in Querétaro, the question can be answered as follows: training under the guidance of an instructor surgeon (remembering that cataract is the most common cause of preventable blindness and visual impairment worldwide) using standardized methodology on visual and tactile virtual reality simulators until the surgical technique is mastered perfectly. This minimizes the learning curve and improves patient

safety by decreasing the occurrence of complications during the early stages of surgical practice.

To make a comparison (although somewhat distant, it serves the purpose of this analysis), think of a mechanic. Would you take your car for tuning service to someone who fixes one car per day, or someone who fixes ten cars per day? Undoubtedly, you would choose the more experienced one, right? With the brand's workshop that has all the manuals and parts for your car. Well, something similar happens in ophthalmology. Even in nations such as the United Kingdom and Denmark, it is mandatory for individuals to showcase their proficiency in surgical skills through simulator assessments before being permitted to perform surgeries on patients. The aviation industry was the pioneer of these concepts, to the extent that most commercial pilots have to recertify once or twice a year, and this gives us, as passengers, confidence in the pilot's experience.

So, although we still haven't answered the initial question of how many cataract surgeries are needed to become a good surgeon? We are confident that controlled and effective learning environments, well-supervised and evaluated, definitely have a significant impact on the answer we are still seeking.

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