

An Elite Surgeon - Dethroning the Master Surgeon

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Recently at a conference I was introduced to a term, “Elite Performance” by Professor Peter Shah, the past president of the UK and Eire Glaucoma society. The concept challenged the effectiveness of my current surgical standards. I was forced to reflect on my proud expertise of “under five minutes” phacoemulsification procedure with an audited, unadjusted complication rate of 0.3%.

In the 1980s, Allen Newell, a famous Carnegie Mellon cognitive scientist, analysed reaction times for a variety of tasks reported in learning experiments and he noted that the time taken to perform a task decreases with the number of repetitions of that task. This is termed as “*power law of learning*”.

Acquiring surgical expertise is time consuming to the doctor. If a surgeon doesn't get many learning opportunities, he may never reach that optimal-performance plateau accessible only after repetitive learning has happened.

Traditionally, emphasis has always been placed on the value of comprehensive knowledge, surgical technique, and good manual dexterity as one of the key factors influencing any surgeon's intraoperative performance. However, another set of complementary skills called “non-technical skills” have also been integrated into surgeon's repertoire to optimize surgical performance e.g. familiarity with the instruments and modern technology, ideal room temperature and lighting, background noise, familiarity and relationships with the surgical team, stress, performance anxiety, fatigue, dehydration, and age.

Professor Shah discussed the importance of softer nontechnical skills for elite performance but then went on to challenge

the very crux of surgical training – i.e. “Practice Makes Perfect”. He emphasized, “Practice only makes surgeons' habits permanent”. He added that perfection comes from the time and effort spent in the preparation of anticipating and facing every possible complication of a stressful situation. For example, a master surgeon facing fluid and/or aqueous misdirection during cataract surgery may be slick enough to finish IOL implantation and safely complete the surgery without typical complications. An elite surgeon on the other hand with comparable surgical skills would have anticipated it preoperatively, prepared himself, the patient and his team for such eventualities and more importantly would have also taken steps to prevent fluid misdirection from occurring in the first instance e.g. operating under GA with reduced end tidal volume of carbon dioxide, use of IV mannitol, closed chamber surgical technique, correct use of OVD and a comprehensive plan to reverse aqueous misdirection per-op and postoperatively in all variable possibilities. Hence, a talented surgeon but with poor focus on acquiring non-technical skills is merely a reflection of repetitive poor habits. A situationally aware surgeon who engages into continuous cycle of monitoring and reevaluating performance of his team and himself is able to take dynamic clinical and non-clinical decisions while a stressful event is unfolding. An elite performance surgeon is open to the opinions of others and learns to integrate effective communication in a stressful situation. Surgeon's non-technical skills enable him to improve the functioning of the surgical team and to enhance the patient safety. His leadership qualities ensure a calm and

collected atmosphere promoting a culture of supporting the team for enhanced clinical efficiency and patient safety.

In the end, it is extremely important to pay special attention to frequently ignored but vital performance shaping factors. Physical and psychological health can adversely affect surgeon's performance. Hence to maintain elite performance, it is pertinent to address physical illnesses, mental stress and fatigue. Surgeons may find their

performance decline while battling with negative emotions. Micronutritional deficiencies, poor hydration, lack of physical exercise and mental stress also leads to inflammation of facia which has demonstrated shortening of telomeres thus exponentially hastening ageing changes.

An experienced surgeon may be praised for his superior surgical skills, but an "elite performance" surgeon is born only when he learns to embrace non-technical skills.