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Cognitive Skills Training in Digital Era: A Paradigm Shift in Surgical Education Using the TaTME Model

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Abstract

Surgical competence is a complex, multifactorial process, requiring ample time and training. Optimal training is based on acquiring knowledge and psychomotor and cognitive skills. Practicing surgical skills is one of the most crucial tasks for both the novice surgeon learning new procedures and surgeons already in practice learning new techniques. Focus is placed on teaching traditional technical skills, but the importance of cognitive skills cannot be underestimated. Cognitive skills allow recognizing environmental cues to improve technical performance including situational awareness, mental readiness, risk assessment, anticipating problems, decision-making, adaptation, and flexibility, and may also accelerate the trainee's understanding of a procedure, formalize the steps being practiced, and reduce the overall training time to become technically proficient. The introduction and implementation of the transanal total mesorectal excision (TaTME) into practice may be the best demonstration of this new model of teaching and training, including pre-training, course attendance, and post-course guidance on technical and cognitive skills. To date, the TaTME framework has been the ideal model for structured training to ensure safe implementation. Further development of metrics to grade successful learning and assessment of long term outcomes with the new pathway will confirm the success of this training model.