



Enhancing Surgical Competence Through Laparoscopic Simulation: A Model for Medical and Resident Education at the University of Oradea

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1. Background

Simulation-based training is increasingly recognized as an essential component of modern surgical education. Laparoscopic simulation provides a controlled and reproducible environment for developing psychomotor skills before clinical exposure, improving patient safety and reducing operative learning curves.

2. Objective

To evaluate the educational impact of the laparoscopic simulation laboratory integrated into the surgical curriculum at the University of Oradea.

3. Methods

The simulation program (2021–2025) included 167 medical students and 47 residents.

Training modules included:

- Laparoscopic basic skills
- Laparoscopic appendectomy simulation
- Laparoscopic cholecystectomy simulation
- Intracorporeal suturing
- Knot tying

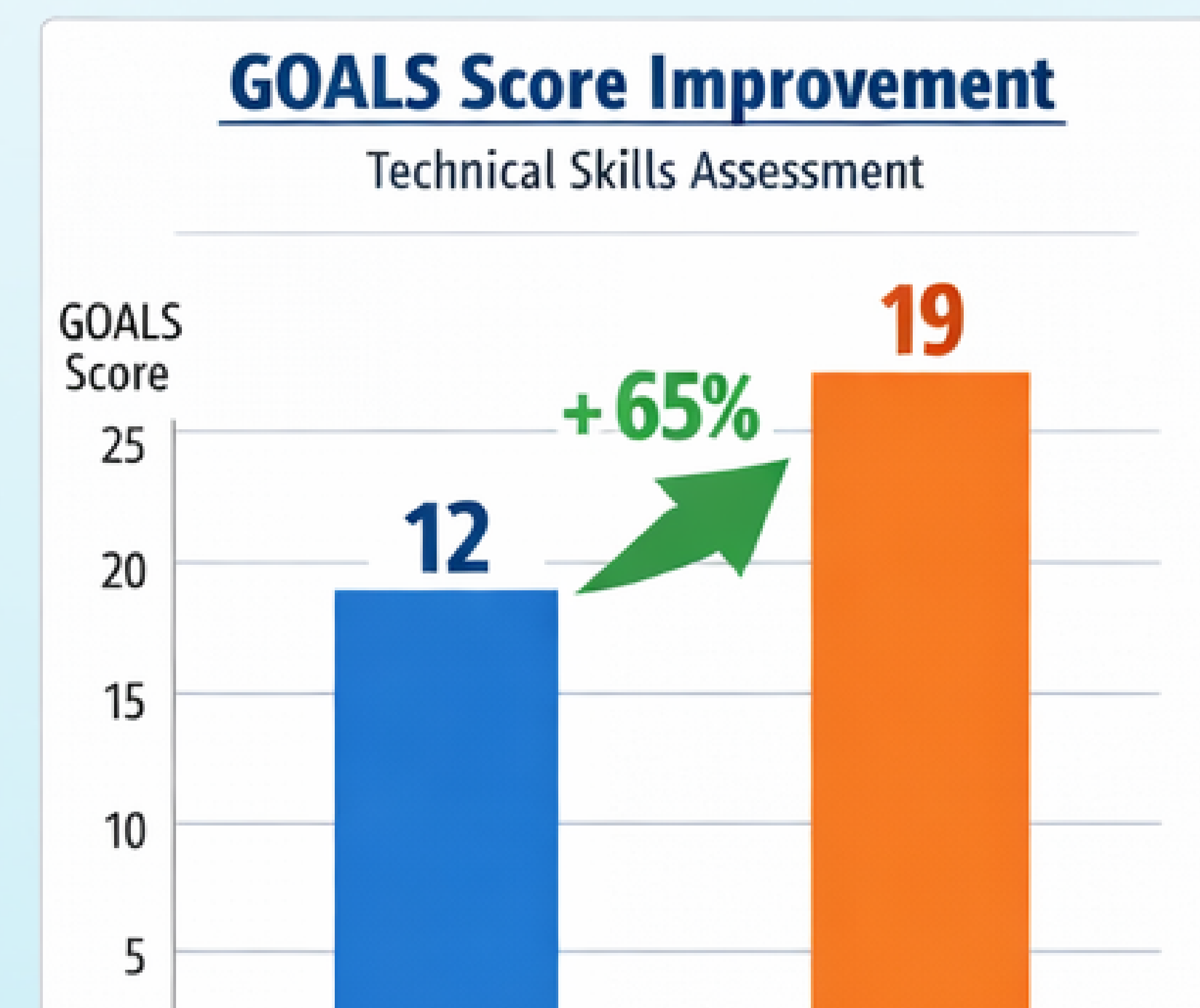
4. Results

Technical performance was evaluated using the GOALS assessment scale after seven structured training sessions. Participants demonstrated a 65% improvement in GOALS technical scores.

Students reported increased confidence, improved hand-eye coordination, and enhanced procedural understanding.,

5. Conclusions

The Oradea laparoscopic simulation laboratory represents a scalable model for integrating simulation into surgical curricula, supporting safer and more efficient training of future surgeons.



Key References: Aggarwal, R., & Darzi, A. (2011). Technical-skills training in the 21st century. *New England Journal of Medicine*; Seymour, N.E., Gallagher, A.G., Roman, S.A., O'Brien, M.K., Bansal, V.K., Andersen, D.K., & Satava, R.M. (2002). Virtual reality training improves operating room performance: Results of a randomized, double-blinded study. *Annals of Surgery*; Fried, G.M., Feldman, L.S., Vassiliou, M.C., Fraser, S.A., Stanbridge, D., Ghitulescu, G., & Andrew, C.G. (2004). Proving the value of simulation in laparoscopic surgery. *Annals of Surgery*; Vassiliou, M.C., Feldman, L.S., Andrew, C.G., Bergman, S., Leffondré, K., Stanbridge, D., & Fried, G.M. (2005). A global assessment tool for evaluation of intraoperative laparoscopic skills (GOALS). *American Journal of Surgery*;