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A prospective, randomized, multi-centre trial on the efficiency and effectiveness of proficiency based progression robotic surgical skills training

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Introduction & Objectives: We report the use of full Proficiency Based Progression (PBP) methodology to train robotic surgical skills in comparison to other conventional training approaches. We evaluated: 1) if all trainees reached the proficiency benchmark, 2) the number of training trials and time required.

Materials & Methods: Design Prospective, randomized, multi-center study. Setting International surgical robotic skills training center. Participants 47 participants randomized to 4 different groups (figure 1) i) Full PBP group that received eLearning on the ORSI chicken anastomosis task with the requirement to reach the proficiency benchmark before starting practical training. ii) eLearning group, received the exact same information as Full PBP group, but they were not required to reach the eLearning benchmark. iii) Traditional group received the same content in face-to-face lectures, before the practical module. iv) The Apprenticeship group received a conventional preparation. Intervention. Robotic suturing and knot tying anastomotic task in a validated chicken model.

Main outcome measures number of trainees reaching the quantitatively defined proficiency benchmark and the time required.
Results: All of the participants, except five in group 4, demonstrated the proficiency benchmark. Group 1 took ~6 trials or ~3 hours; Group 2 required 14% longer, Group 3, 103% (p<0.000) and Group 4, 162% (p<0.000) longer to reach proficiency.
Conclusions: The efficiency and effectiveness observed with a full application of a PBP approach to skills training could have profound implications for how training is conducted in the future.