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Introduction & Objectives: Surgical skill is often thought to be associated to surgical discipline. Proficiency Based Progression (PBP) training is a training method that has demonstrated its value in different surgical specialties. The “Venezuelan chicken model” is an optimal training model for robotic suturing, anastomosis and knot tying tasks. In a construct validity study, performance metrics for vesico-urethral anastomosis (VUA) on this model were validated. This study aims to compare different surgical disciplines regarding performance when performing the robotic suturing of a VUA on a chicken model according to traditional versus PBP methodology.

Materials & Methods: Robotic naïve urology (n = 12), surgery (n = 12) and gynecology (n = 12) junior residents (n = 36) were recruited. They all got access to an online learning platform where they were thought the procedural steps after which a basic assessment on the chicken model was done for all participants. Consequently, a 1:1 matched randomization was done. 18 participants were enrolled in the traditional group where they were trained by robotic experts in an apprenticeship model. 18 participants were randomized to the PBP-group. The latter had to demonstrate proficiency in an online assessment after following an e-learning didactic course where they were thought the VUA metrics. When reached the benchmark, they were trained by PBP-methodology. Final assessment, using performance metrics was done live and video-based blinded for group assignment. Participants were proficient after matching the proficiency benchmark, the mean performance by experts in the construct validity study.

Results: Number of performance errors differed significantly between PBP versus traditional group for gynecologists (7 (95% CI, 3–10) vs 17 (95%CI, 10-24)) (p=0,007), for surgeons (6 (95% CI, 2–9) vs 14 (95%CI, 8-20)) (p=0,013) and for urologists (6 (95% CI, 2–9) vs 14 (95%CI, 9-19)) (p=0,006). There were no inter-discipline difference in performance errors in the traditional and PBP group. Overall, 1 (6%) participant reached proficiency in the traditional group vs 15 (78%) in the PBP group (p<0,000).

Traditional trained (n = 18)

6% passed

PBP trained (n = 18)

78% passed

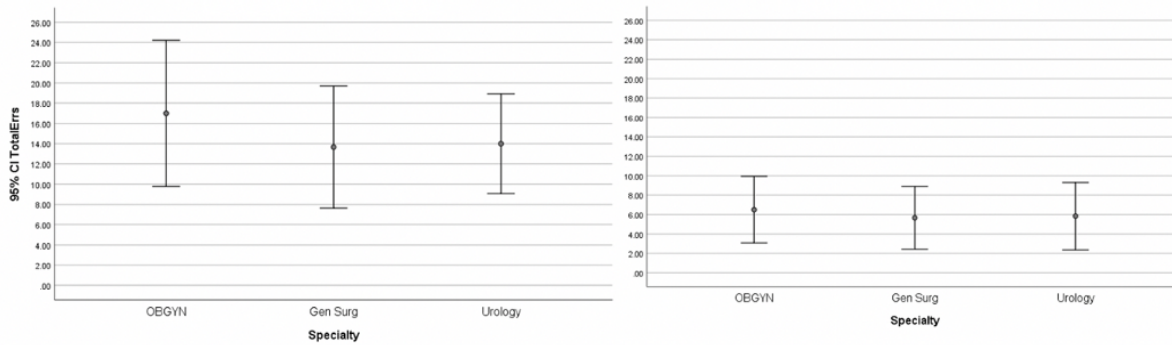


Figure 1: Surgical performance errors in the traditional versus PBP group stratified according to surgical discipline

Conclusions: In the PROVESA trial, there were no inter-discipline differences in surgical performance. Surgical skill is not determined by discipline but by training methodology.