

## Training novice robot surgeons: Proctoring provides same results as simulator-generated guidance

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Beulens A.J.W.<sup>1</sup>, Hashish Y.<sup>1</sup>, Brinkman W.M.<sup>2</sup>, Umari P.<sup>3</sup>, Puliatti S.<sup>4</sup>, Koldewijn E.L.<sup>1</sup>, Hendriks A.J.M.<sup>1</sup>, Van Basten J-P.<sup>5</sup>, Van Merriënboer J.J.G.<sup>6</sup>, Van Der Poel H.G.<sup>7</sup>, Bangma C.H.<sup>8</sup>, Wagner C.<sup>9</sup>

<sup>1</sup>Catharina Ziekenhuis Eindhoven, Dept. of Urology, Eindhoven, The Netherlands, <sup>2</sup>University Medical Centre Utrecht, Dept. of Oncological Urology, Utrecht, The Netherlands, <sup>3</sup>University of Eastern Piedmont, Dept. of Translational medicine, Novara, Italy, <sup>4</sup>University of Modena and Reggio Emilia, Dept. of Urology, Modena, Italy, <sup>5</sup>Canisius Wilhelmina Ziekenhuis, Dept. of Urology, Nijmegen, The Netherlands, <sup>6</sup>Maastricht University, Dept. of School of Health Professions Education, Maastricht, The Netherlands, <sup>7</sup>Netherlands Cancer Institute-Antoni van Leeuwenhoek Hospital, Dept. of Urology, Amsterdam, The Netherlands, <sup>8</sup>Erasmus Medical Centre, Dept. of Urology, Rotterdam, The Netherlands, <sup>9</sup>Netherlands Institute for Health Services Research (NIVEL), Utrecht, The Netherlands

**Introduction & Objectives:** To understand the influence of proctored guidance versus Simulator generated guidance (SGG) on the acquisition dexterity skills in novice surgeons learning RAS (Robot Assisted Surgery).

### Materials & Methods:

Prospective non-blinded 3-arm randomised controlled trial (RTC). Exclusion criteria: previous experience in RAS or robotic surgery simulation. The participants were assigned to three different intervention groups and received a different form of guidance: (1) proctored guidance, (2) Simulator generated guidance, (3) no guidance, during training on virtual reality (VR) simulator. All participants were asked to complete multiple questionnaires. The training was the same in all groups with the exception of the intervention part. The setting is Catharina Hospital Eindhoven, The Netherlands. A total of 70 Dutch medical students, PhD-students, and surgical residents were included in the study. The participants were randomly assigned to one of the three groups.

**Results:** Overall, all the participants showed a significant improvement in their dexterity skills after the training. There was no significant difference in the improvement of surgical skills between the three different intervention groups. The proctored guidance group reported a higher participant satisfaction compared to the simulator-generated guidance group, which could indicate a higher motivation to continue the training.

### Conclusions:

This study showed that novice surgeons significantly increase their dexterity skills in RAS after a short time of practicing on simulator. The lack of difference in results between the intervention groups could indicate there is a limited impact of "human proctoring" on dexterity skills during surgical simulation training. Since there is no difference between the intervention groups the exposure alone of novice surgeons to the robotic surgery simulator could possibly be sufficient to achieve a significant improvement of dexterity skills during the initial steps of RAS learning.