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simulator to practice until they could perform an intracorporeal suture within the goal time of 5 minutes. Besides this predetermined speed, they were instructed to practice until they did not drop the needle and could keep the instrument tips within a 4 by 4 inch area. Logs to keep track of practice dates and times were administered. Data from surveys, official case logs, and practice time logs were analyzed by student t-test. P-values <0.05 were considered significant.

RESULTS: Twenty residents presented for tutorials. Eight of 20 (40%) reached the goal during the study period. They required between 1 and 21 (median: 3) practice sessions to reach the goal.

	Post Graduate Year 3,4 or 5	Complex Laparoscopic Cases*	Baseline Time (min)*
Reached Goal 8 (40%)	7/8 (88%)	21+/-17.2	11+/-4.43
Goal Not Reached 12(60%)	2/12 (17%)	7+/-5.6	21.7+/-12.3
p-value	0.001	0.015	0.035

*denotes mean and standard deviation

CONCLUSION: Residents that achieved competence in laparoscopic intracorporeal suturing (as compared to those that did not) were 1) significantly more likely to have had 3 or more years of post-graduate training, 2) significantly more experienced with complex laparoscopic cases, and 3) sutured twice as fast at the time of their initial tutorial.

P063 ENDOSURGERY FOR CHILDREN WITH TUMOR Wang Jian, Li Long The Capital Institute of Pediatrics

PURPOSE: To evaluate the feasibility and safety of endosurgery in children.

MATERIALS & METHODS: 45 patients undertaken endosurgery from January 2001 to March 2009. Of the patients, there were 35 patients with benign tumor, and 10 patients with malignant tumor. Their age ranged 28 days to 12 years (mean 39.4±26.4m). Of the patients, there were 27 boys and 18 girls. The diameter of tumors ranged from 3cm to 15cm (mean 6.5±2.5cm). Of the patients, there were 4 patients with thyroid adenoma, 13 with ovarian cyst, 1 with pancreatic cyst, 2 with renal cyst, 3 with mediastinal mass, 2 with adrenal neuroblastoma, 2 with Wilms' tumor, 6 with adrenal adenoma, 3with pulmonary metastases.

RESULTS: Average duration of operation was 112.6±41.7min (ranged, from 30 to 185 hours) without intraoperative complications. Intraoperative bleeding was 5 to 50 ml without necessity for blood transfusion. Return of oral food intake was 1 day (range, from 1 to 3 days) postoperative. The postoperative course was uneventful in 45 patients with hospital stay 6.5±2.5days (ranged, from 3 to 10 days) after the operation. There was no postoperative complication during followed-up visits.

CONCLUSIONS: Endosurgery for children with tumors is feasible ,safe and effective.

KEY WORDS: tumor; endoscope; children; endosurgery

P064 DEVELOPMENT OF A VIRTUAL LAPAROSCOPIC TRAINER USING ACCELEROMETER AUGMENTED TOOLS TO ASSESS PERFORMANCE IN SURGICAL TRAINING Shabnam Parkar, MBBS BScHons MRCSEng AISCN, Dean Mohamedally, BSc PhD, Munther Haddad, MBBS FRCS, Chris Child, Ricardo Doroana

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Previous research suggests that virtual reality (VR) may supplement conventional training in laparoscopy. It may prove useful in the selection of surgical trainees in terms of their dexterity and spatial awareness skills in the near future. Current VR training solutions provide levels of realism and in some instances, haptic feedback, but they are cumbersome by being tethered and not ergonomically close to the actual surgical instruments for weight and freedom of use factors. In addition, they are expensive hence making them less accessible to departments than conventional box trainers. The box trainers in comparison, although more economical, lack tangible feedback and realism for handling delicate tissue structures. We have previously reported on the development of a modified digitally enhanced surgical instrument for laparoscopic training, named the Parkar Tool. This tool contains wireless accelerometer and gyroscopic sensors integrated into actual laparoscopic instruments. By design, it alleviates the need for both tethered and physically different shaped tools thereby enhancing the realism when performing surgical procedures. Additionally the software (Valhalla) has the ability to digitally record surgical motions, thereby enabling it to remotely capture surgical training data to analyse and objectively evaluate performance. We have adapted and further developed our initial single training tool method as used with a laparoscopic pyloromyotomy scenario, to an enhanced method using multiple Parkar wireless tools simultaneously, for use in several different case scenarios. This allows the use and measurement of right and left handed dexterity with the benefit of using several tasks of differing complexity. The development of a 3D tissue-surface deformations solution written in OpenGL gives us several different virtual surgical training scenario approximations to use with the instruments. The trainee can start with learning simple tasks e.g. incising tissue, grasping, squeezing and stretching tissue, to more complex procedures such as suturing, herniotomies, bowel anastomoses, as well as the original pyloromyotomy as used in the first model.

The ultimate aim of producing this training tool is to facilitate the training of surgeons in laparoscopic surgery prior to operating. We will assess the ability of the training tool to acquire, measure and report on surgical trainees' spatial awareness skills. Group 1 will incorporate 10 junior/novice trainees of similar experience matched via a questionnaire assessing previous experience and exposure to surgery. Group 2 will involve 10 senior surgeons matched with a similar level of surgical experience e.g. Year 4 surgical registrars. The groups will perform a simple task e.g. incise and open an organ and a more complex task e.g. pyloromyotomy 10 times in the 1st trial and 10 times in the 2nd trial after a predetermined break period. Skill acquisition, loss and reacquisition will be assessed for each group and also compared between the two, thereby allowing definition of a criterion level. This study will ultimately evaluate our virtual laparoscopic training methodology, and demonstrate its potential to be an easily accessible and economically sound method in training and preparing laparoscopic surgical trainees of the future.

P065 EXPERIENCE WITH LAPAROSCOPIC TRANSPERITONEAL ADRENALECTOMY IN CHILDREN

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INTRODUCTION: Many authors support the emergence of Laparoscopic Adrenalectomy (LA) as the standard of care for the surgical management of adrenal masses smaller than 15 cm of diameter. They believe it is superior to open surgery as it is associated with less pain,