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Laparoscopic-Simulator Box: a Simple Design for Surgical Residency Programs to Improve Trainees' Laparoscopic Skills

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Introduction: Since the introduction and evolution of laparoscopic surgery, there have been some concerns related to surgical training in this field. Laparoscopic box trainers and virtual simulators appear as useful devices which have been demonstrating effectiveness in learning surgical skills. However, these tools remain inaccessible for many centers around the world. Our intent is to share our experience in successful design to inspire others in surgical residency programs to build such boxes for training in laparoscopic techniques and also to encourage the use of simulators in educational centers.
Purpose: To design and develop an inexpensive and simple but effective and mobile device to aid surgeons in developing and enhancing the psychomotor skills required for performing laparoscopic surgery.
Method: We used a wireless video security system camera and a receiver. Then, we built a rigid box and a platform for a TV monitor using acrylic sheets, screws, braces, flat washers, and screw nuts. Finally, in order to introduce laparoscopic instruments we covered the top of the trainer box with a shelf cover membrane.
Conclusion: Interest in training for laparoscopic procedures has been increasing in all surgical specialties around the world. Advantages for minimal invasive approach over the traditional open approach have been already proven in many procedures and fields. Using many tools as needed every surgical residency should have the commitment to develop high quality educational training to provide an excellent preparation in laparoscopic surgery. We believe that every surgical training program could benefit from availability of simulator devices to help new surgeons develop and practice laparoscopic dexterity outside the operating room. Therefore, we designed and constructed an economical and simple box for training that can be constructed inexpensively for use in any surgical residency program where laparoscopic procedures are taught.