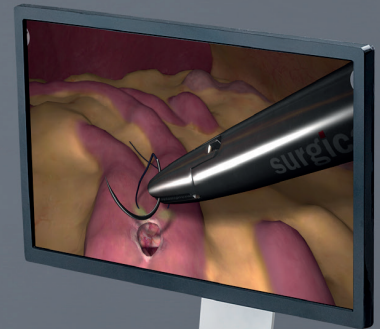


LapSim[®]

by
surgicalscience



Virtual Training
Proven Results.



www.surgicalscience.com



surgicalscience

Better surgical training means safer, more capable surgeons. With clinically proven impact on OR performance, fully customizable curriculum and the industry's highest quality system and service, LapSim is the unmatched leader in virtual reality laparoscopic training.

TARGETED, EFFICIENT TRAINING

The only VR system with published validation of skill transference to the OR, LapSim is also the only VR system that offers a fully customizable curriculum, allowing for thousands of unique challenges and increasing levels of difficulty. LapSim also offers the opportunity to hone in on the critical procedural elements most in need of practice, making the most of valuable training time. The system's unique assessment and performance metrics provide the opportunity for real-time on-screen cues and off-site review.

QUALITY & SERVICE

With LapSim, you're getting the best technology possible, plus the industry's only true partnership. From day one through the life of the simulator, our simulation specialists will assist in everything from set up to curriculum customization to research.

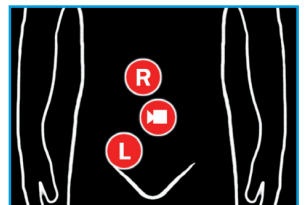
ONGOING INNOVATION

Surgical Science is committed to keeping LapSim on the leading edge. We are the only company to guarantee annual updates with significant module additions and improvements. These updates are at no additional cost through our industry leading warranty program.

LAPSIM 2016 FEATURES

LapSim is more powerful and easier to use than ever. The latest annual update will contain major new components.

- **CHOLECYSTECTOMY MODULE** Now offering a full-length exercise mode including: all steps from dissection of the hepatocystic triangle to dissection and freeing of gallbladder from the cystic plate. Improved physical behavior, featuring new graphics – all to increase the value of this fundamental training procedure.
- **Port position display.** Before a procedural exercise starts, a short preview is now shown of the location of surgery.
- **VATS MODULE** Pulmonary Artery included for a more realistic experience and increased difficulty. Dynamics including surrounding tissues. Default settings in Scenario Configuration, and many more enhancements.
- **Instrument configuration.** Preset your preferred instrument setup in any procedural exercise.
- **A range of upgrades** to Teacher Mode to simplify and help administrating your courses, including survey data export to Microsoft Excel, visualized import routines and more.

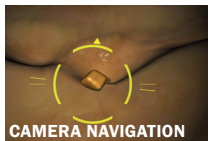


CUSTOMIZED COURSEWORK. DYNAMIC ASSESSMENT.

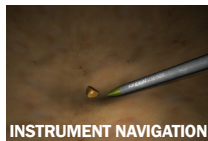
High-performance laparoscopic skills come only with repetition. With LapSim, techniques and complete procedures can be practiced again and again at increasing levels of difficulty, with thousands of new challenges, scenarios and complications to make each experience unique. Each exercise is digitally recorded with detailed metrics, statistics and video debriefing, providing both immediate and long-term skill development feedback.

THE LAPSIM HAPTIC SYSTEM

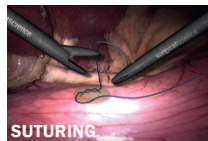
The LapSim Haptic System includes a Haptic hardware platform with LapCam, a separate laparoscope; Basic Skills, Task Training and Camera Anatomy Training software modules; all necessary computer and monitor hardware; and a height-adjustable rolling SimFrame to house the system.

**LAPSIM CORE SOFTWARE MODULES****BASIC SKILLS**

CAMERA NAVIGATION



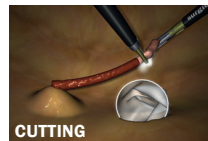
INSTRUMENT NAVIGATION



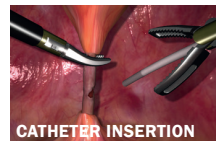
SUTURING



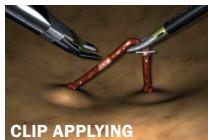
GRASPING



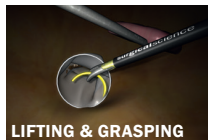
CUTTING



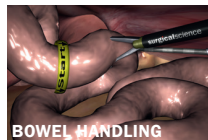
CATHETER INSERTION



CLIP APPLYING



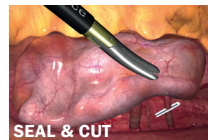
LIFTING & GRASPING



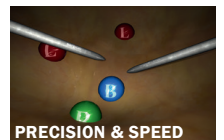
BOWEL HANDLING



FINE DISSECTION

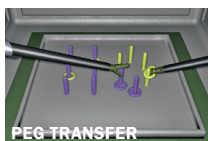


SEAL & CUT

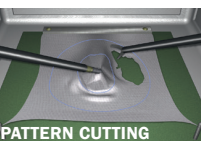


PRECISION & SPEED

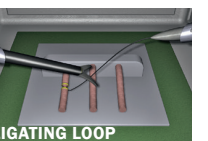
The LapSim Basic Skills software module includes 13 exercises: Camera Navigation, Instrument Navigation, Coordination, Suturing, Grasping, Cutting, Catheter Insertion, Clip Applying, Lifting & Grasping, Bowel Handling, Fine Dissection, Seal & Cut, Suturing, and Precision & Speed.

TASK TRAINING

PEG TRANSFER

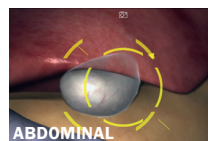


PATTERN CUTTING

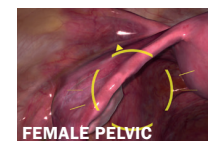


LIGATING LOOP

Inspired by guidelines established by SAGES and ideal for FLS skills training, Task Training exercises include Peg Transfer, Pattern Cutting and Ligating Loop.

CAMERA ANATOMY TRAINING

ABDOMINAL



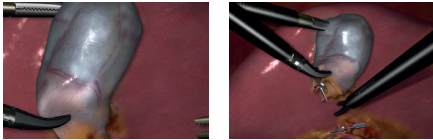
FEMALE PELVIC

Camera Anatomy Training modules focus on teaching camera handling with straight and angled optics within a virtual anatomy.

LapSim's suite of validated, fully customizable procedure modules provides a complete training solution for surgeons across multiple disciplines. With clearly defined learning objectives, procedural deconstruction capabilities and endless variations and challenges, LapSim's library of software modules provides surgeons with unparalleled access to skill practice essential to building surgical proficiency.

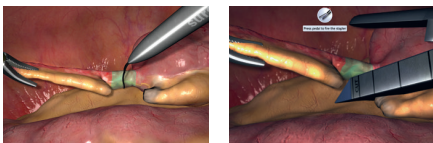
ADDITIONAL LAPSIM SOFTWARE MODULES

CHOLECYSTECTOMY



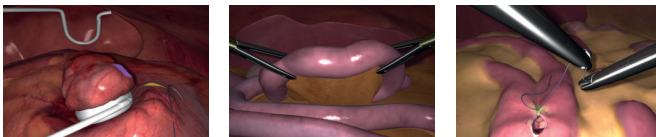
New technology and new procedure. All steps from dissection of the hepatocystic triangle to dissection and freeing of gallbladder from the cystic plate.

APPENDECTOMY



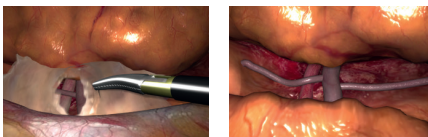
Featuring CaseNetwork®, an integrated cognitive skills trainer for the diagnosis and management, this module simulates various approaches to appendectomy including loop technique, single and dual stapling techniques and optional stapling techniques.

BARIATRICS



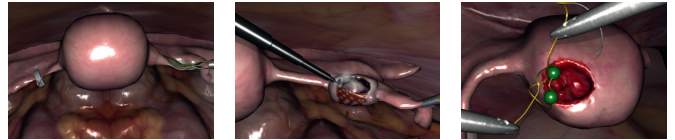
Features procedural deconstruction. Includes simulations of four training tasks: lap-band suturing, jejunal suturing, inspect and measure the bowel.

NEPHRECTOMY



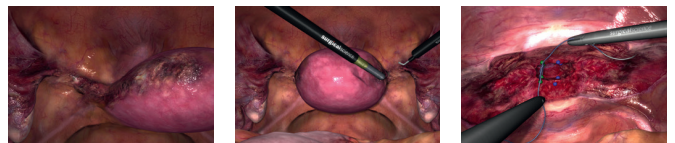
Features procedural deconstruction. Simulates three training tasks, including: kidney dissection, and kidney clipping.

GYNECOLOGY - CORE PROCEDURES



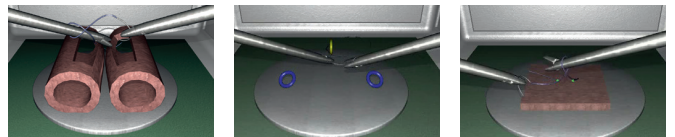
Includes cutting edge simulations of four procedures: Tubal occlusion, Salpingectomy, Salpingostomy and Myoma suturing.

HYSTERECTOMY



Featuring SimPraxis™, an integrated cognitive skills trainer, this module includes right and left uterine artery dissection, vaginal cuff opening, and suturing of the cuff after removal of the uterus.

SUTURING & ANASTOMOSIS



Features a progressively complex, stepwise approach to suturing and knot tying techniques.

VIDEO-ASSISTED THORACOSCOPIC SURGERY (VATS) LOBECTOMY



Simulates all key steps of the removal of the upper right lung lobe using a three-port anterior approach. Now also including the Pulmonary Artery structure.

Proven More Cost-effective than Conventional Training.

According to the Annals of Surgery, "training on VR simulators [is] more cost-effective than conventional residency training ... for residency programs with more than 10 trainees."

*Annals of Surgery, Volume 255, Number 5, May 2012

LapSim Return on Investment = 3.2 years*

Updates & Support: Keeping You on the Cutting Edge.

A big part of delivering on our commitment to advancing the field of medical simulation training is making sure our software is constantly evolving, improving and available to our users without any hassle.

That's why we take full responsibility for keeping LapSim up-to-date with the most current software version available. Subscribers to our Update & Support agreement receive substantial upgrades at least once a year, including improved software and new training simulations.

The illustration below shows some of the updates released over the past years.

1999-2011

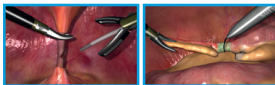
2012



- More than 50 new features.
- New Hysterectomy module.
- New Basic Skills exercise.

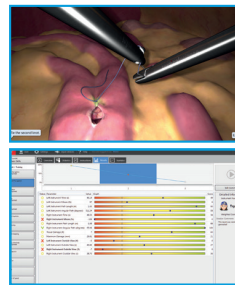


2013



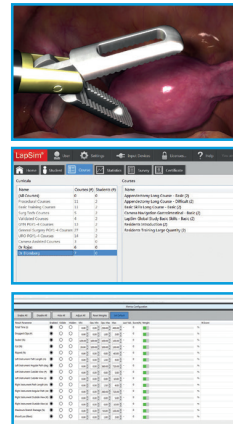
- New Basic Skills exercise: Catheter Insertion.
- Improved Appendectomy module.
- New instrument choices in Bowel Handling.
- New LapSim Haptic System.

2014



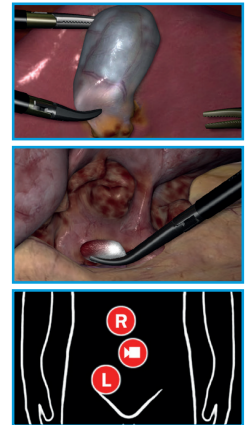
- Bariatrics module now Jejunal Suturing, inspect Bowel and Measure bowel in addition to Lap-Band Suturing.
- Nephrectomy module now includes 2 new exercises: Kidney Dissection and Kidney Combined, in addition to Kidney Clipping.
- New: Survey function allows instructor ability to create and insert customizable questionnaire to any course for students/trainees.

2015



- Easier Course administration
- New: Easily & Quickly implement default metrics.
- New Instruments: Atraumatic graspers, Maryland graspers.
- Additional Courses: Access more than 50 new courses.

2016

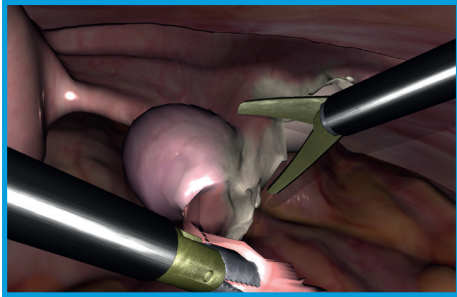


- Cholecystectomy module: full-length exercise mode.
- VATS module: Pulmonary Artery included for a more realistic experience and dynamics including surrounding tissues.
- Port position display is now shown of the location of surgery.
- Upgrades to Teacher Mode to simplify and help administrating your courses, including survey data export to Microsoft Excel.



LapSim is the only virtual training system proven to improve OR performance. In fact, multiple randomized published studies have demonstrated that the skills practiced during both short-term and long-term training with LapSim are directly transferable to the operating room.

VR TRAINING LEADS TO FEWER ERRORS AND OPERATING TIMES



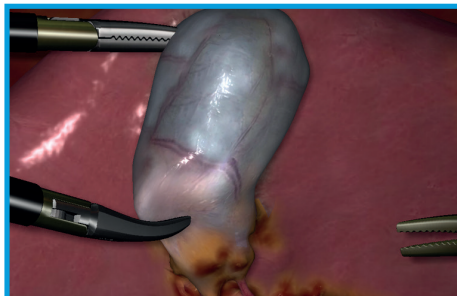
Picture from the Salpingectomy procedure in LapSim.
Watch the video at: <http://www.youtube.com/surgicalscience>

CLINICAL STUDY: “Effect of virtual reality training on laparoscopic surgery: randomized controlled trial”

Published in BMJ 2009; 338:b1802 (e-publication, May 14, 2009)

RESULTS: After 6 hours of virtual reality-based LapSim training, the performance level of novices increased to that of a laparoscopist with 20-50 case experiences and halved the time needed to complete the procedure.

VR WARM-UP IMPROVES OR PERFORMANCE



Picture from the Cholecystectomy procedure in LapSim.
Watch the video at: <http://www.youtube.com/surgicalscience>

CLINICAL STUDY: “Warm-up in a virtual reality environment improves performance in the operating room”

Published in Annals of Surgery, June 2010

RESULTS: Brief (15 minute), pre-surgical warm-up on LapSim significantly improved the performance of surgeons conducting a laparoscopic cholecystectomy in the OR, leading to improved procedural outcomes, improved patient safety and better utilization of OR resources.

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