

Simbionix LapSim®

The proven simulator



Your first choice for training

Surgical Science and our pioneering LapSim® simulator can improve your training and patient outcomes simply and quickly. And by working together we can make virtual reality (VR) simulation an essential and cost effective component of your resident training.

The Only Proven Simulator

LapSim is the most comprehensive and only validated VR simulator on the market. Studies show that surgeons trained on a LapSim simulator perform better in the operating room (OR).¹

The Only Validated Curriculum

LapSim is the only simulator that comes with a fully validated curriculum, the LapSim Certification Program™. Use this to set up a training program instantly or customize the parameters to fulfil your own training requirements.

Dedicated Support Team

We install and help maintain your simulators and provide yearly software updates. We also offer collaborative support to integrate VR simulation into your training, customize your own surgical program or modify the LapSim parameters and metrics.

State-of-the-Art Technology

LapSim is an advanced simulator, with detailed graphics, haptic feedback and a new intuitive interface. It provides a rich and immersive, multi-sensory training experience that is unmatched in the market today.



**Give your
training centre a
competitive edge**

Prepare more confident surgeons

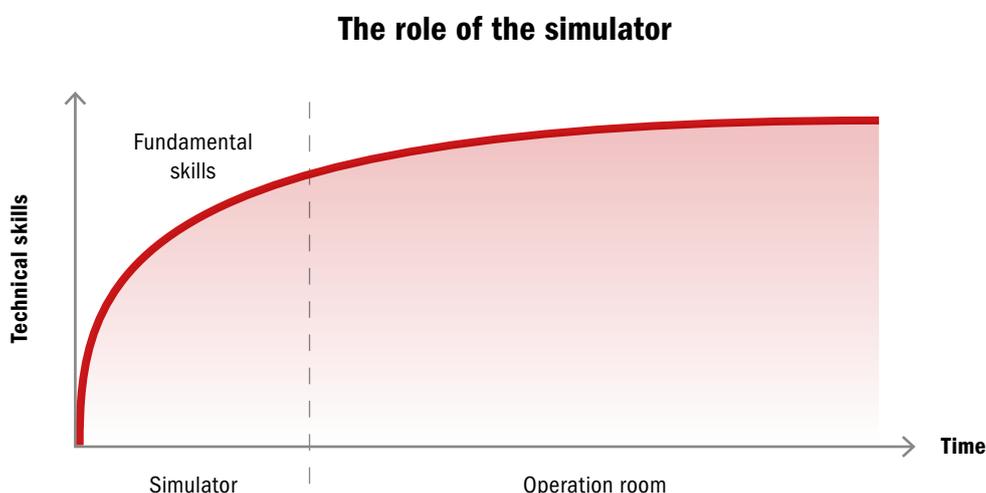
There are many benefits to VR simulation training. It shortens the time it takes to gain surgical competency and delivers consistent cost-effective training that helps develop more prepared surgeons, reducing medical errors.¹

Advanced, Effective Training

How are your residents trained today? Are they getting consistent training? Does it take them a long time for them to become competent? Are their skills good enough to enter the OR? With a LapSim simulator you get a standardized 24/7 guided training program that provides real-time feedback. This reduces the demands on supervision time and leads to more skilled and confident surgeons, ready for the OR.

Better Patient Care and Safety

This graph shows the learning curve for a typical resident. The role of a LapSim simulator is to shorten the time it takes your residents to be trained in fundamental surgical skills such as depth perception and instrument handling. LapSim makes sure residents are prepared, safe and confident to start laparoscopic surgery on real patients.^{1,2}





The Training Benefits of a LapSim Simulator:

- Train without risk to patients, reducing errors in first operations.
- Shorten the learning curve and be more prepared for real surgery.²
- Train more effectively compared to traditional methods.³
- Learn 24/7 and accelerate the time needed to gain competency.²
- Receive standardized, objective, data-driven feedback.
- Work at your own pace and reduce demands on supervision time.
- Practice entire surgical procedures and experience the realities of the OR.



Instructors Can Now Login Anywhere, Anytime

- No need to stand at the simulator for admin tasks.
- Manage admin quickly while on the go.
- Easily monitor residents and support their needs.



Teach the skills that surgeons really need

The LapSim simulator comes with an improved and more intuitive interface, new performance and assessments metrics and an immersive 360 VR headset. This means LapSim is more effective at teaching laparoscopic skills than ever before.

The Next Level in VR Training

- With the latest haptic technology residents can master hand-eye coordination and psychomotor skills, and develop accurate manual dexterity.
- The new LapSim 360 simulation suite creates an immersive, multi-sensory training experience that allows residents to feel more involved and closer to the real OR experience.

New Metrics for Clear, Objective Feedback

- Residents get a comprehensive data-driven training report that analyses their skills in more detail than ever before.
- Assessment metrics are classified into easy to understand surgical terms so residents know what they are good at and what they are not.
- Each exercise can be recorded to provide detailed performance analysis. This supports skill development and encourages residents to train.
- All parameters are grouped according to the GOAL* rating scale, a validated assessment tool that measures

training outcomes.

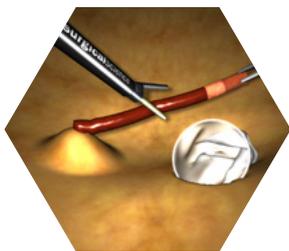
More Intuitive Interface

- An effective goal-orientated environment helps residents learn and stay motivated.
- Easy to use and navigate, with easy to follow instructions and video guides.
- Clear overview of over 40 courses, including introductory courses and challenging exams.



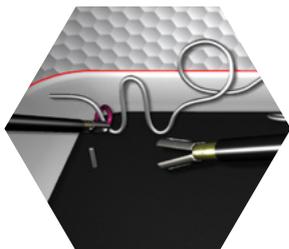
The complete training solution

Our 'Fundamental Skills' modules provide proficiency-based training to help students achieve the manual dexterity needed to perform surgery. Each exercise has increasing difficulty levels that challenge residents and keep them motivated.



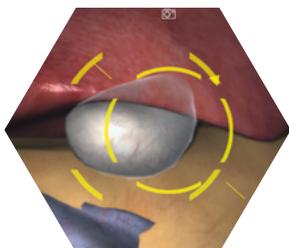
Basic Skills – Master the Fundamentals

A comprehensive portfolio of well-defined laparoscopic exercises, from basic navigation to advanced suturing. Includes real-time feedback for instant learning.



Task Training – Repetition and Refinement

Inspired by the Fundamentals of Laparoscopic Surgery (FLS), a standard developed by the Society of American Gastrointestinal Endoscopic Surgeons (SAGES), this module includes Peg Transfer, Pattern Cutting and Wireloop.



Camera Anatomy Training

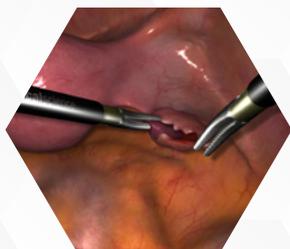
This module teaches camera handling with straight and angled optics. Tasks are scored on multiple metrics, such as drift and economy of movements.

With the Surgical Procedure modules, residents can master essential elements of full surgical procedures and experience the true realities of the OR.



New VATS Lobectomy Full Suite

Training on key steps in the resection of each five lung lobes utilizing the Copenhagen Standardized Anterior Approach. With realistic anatomies improved tissue handling and enhanced graphics.



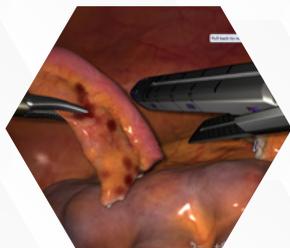
Gynecology - updated

Cutting edge simulations of 4 procedures: tubal occlusion, salpingectomy, salpingostomy and myoma suturing. This module has been proven to provide significant improvement in trainees' skills before they enter the OR.¹



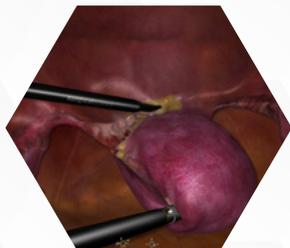
Cholecystectomy - updated

Includes each critical step in this frequently performed procedure, from clipping the cystic duct to removing the gall bladder. With scenario and skills-based customization, so instructors can introduce complications and target specific skill development.



Appendectomy

Introducing residents to one of the most frequently performed surgeries. Challenges trainees' procedural knowledge and decision-making skills with extensive pathology variations and complications.



Hysterectomy

A comprehensive and customizable VR training experience that simulates the critical steps of a laparoscopic hysterectomy procedure. With expanded content and optional port placements.

More Procedures: Inguinal Hernia - Nephrectomy - Bariatrics
- Suturing and Anastomosis.



Our simulators are
the most scientifically
validated in the world

The LapSim Certification Program™

Our simulators are the most scientifically validated in the world. Studies have proven^{1,2} that our simulators work and that VR skills successfully transfer to the OR. We have applied these studies to create our own validated curricula, the LapSim Certification Program™.

The LapSim Certification Program is a validated curricula that makes sure your residents reach an accredited proficiency in laparoscopy. There are two certified residency programs:

General Surgery

Designed especially for residents in General Surgery and includes Expert Training and the Ahlberg Exam. It is based on a study published in the American Journal of Surgery that showed that training on a VR simulator to a level of proficiency significantly improves intraoperative performance during a resident's first 10 laparoscopic cholecystectomies.¹

Gynecology

Designed especially for residents in Gynecology, including Expert Training, Salpingectomy and the Larsen Exam. It is based on the study "the effect of VR training on laparoscopic surgery" published in the British Medical Journal which showed the positive impact of LapSim training on patient outcomes².

These certification programs use the same parameters as these studies. You can configure these parameters - the difficulty levels, camera angles and metrics - to meet your own specific standards and requirements.

Develop a world class residents' program

LapSim is the only training simulator that comes with a customizable curriculum so you can develop and enhance your residents' program. The Yale University School of Medicine collaborated with Surgical Science to integrate VR simulation into their residents' training to create a successful simulation centre.

Case Study

Yale University School of Medicine

Dr. Hulda Einarsdottir, the Director of Surgical Simulation at Yale University, introduced VR simulation training into her curriculum in 2015 and upgraded her training center with two new LapSim simulators.

To integrate the simulators into her residents' program she reached out to Surgical Science's customer support, "We talked together about my objectives, and they identified additional resources - particularly the LapSim Certification Program - to help me do what I wanted to do."

With the help of Surgical Science, Hulda adapted the program to suit her training needs "The program was already a validated curriculum, so it made sense to not reinvent the wheel. Instead, we simply built on this existing foundation and Americanized it."

Hulda's new training program was a huge success and she recently received a faculty award for contribution

to education, "I was surprised and honored with this recognition. They didn't share the specifics of their decision-making, but I think it may have had something to do with the nights I spent in the simulation lab helping them with their mock exams!"



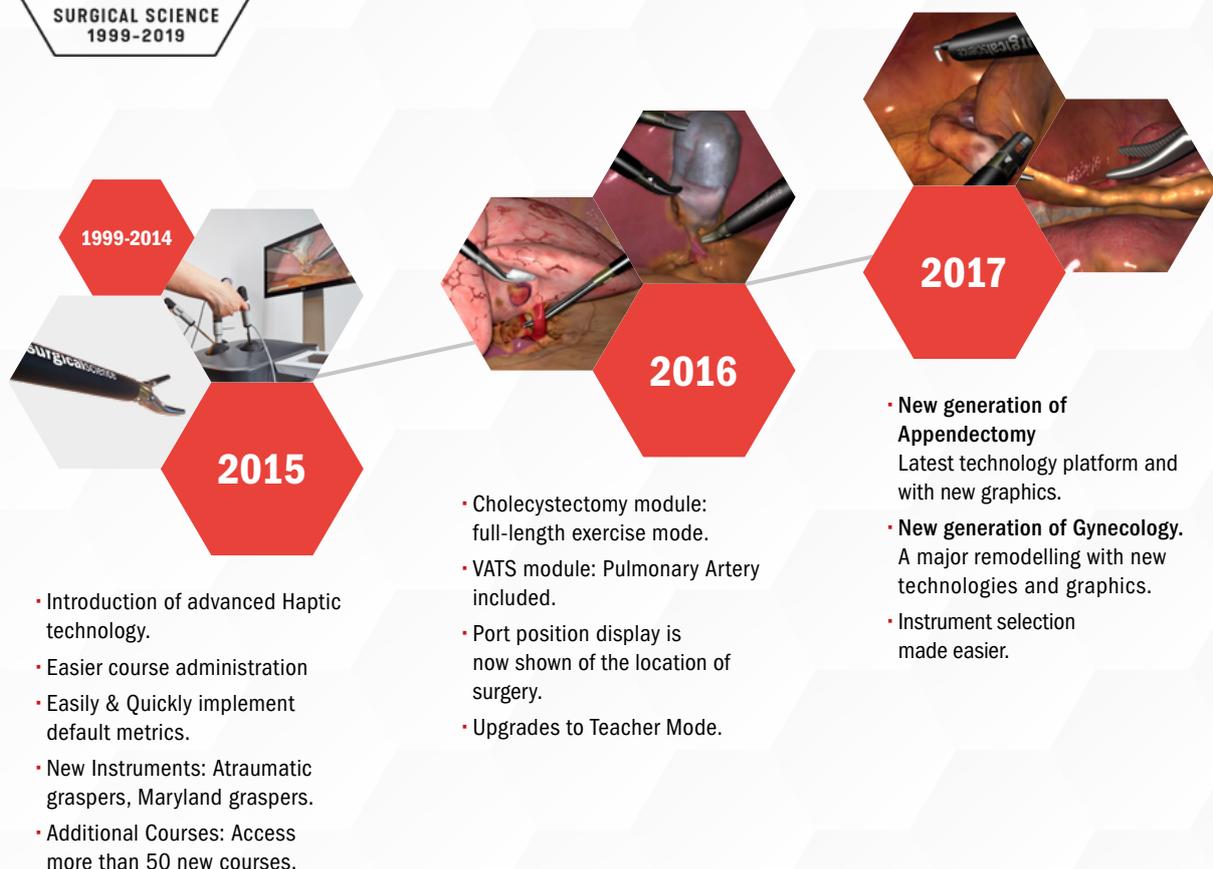
Dr. Hulda Einarsdottir,
the Director of Surgical Simulation
at Yale University



VR simulator-trained students perform with more confidence, less operative time, and increased accuracy.

Constantly evolving, always improving

For over 20 years, Surgical Science has been committed to being at the forefront of simulation technology. We are constantly changing, updating and expanding our simulators and working with new partners with one goal in mind, to keep our customers happy.



Our Vision

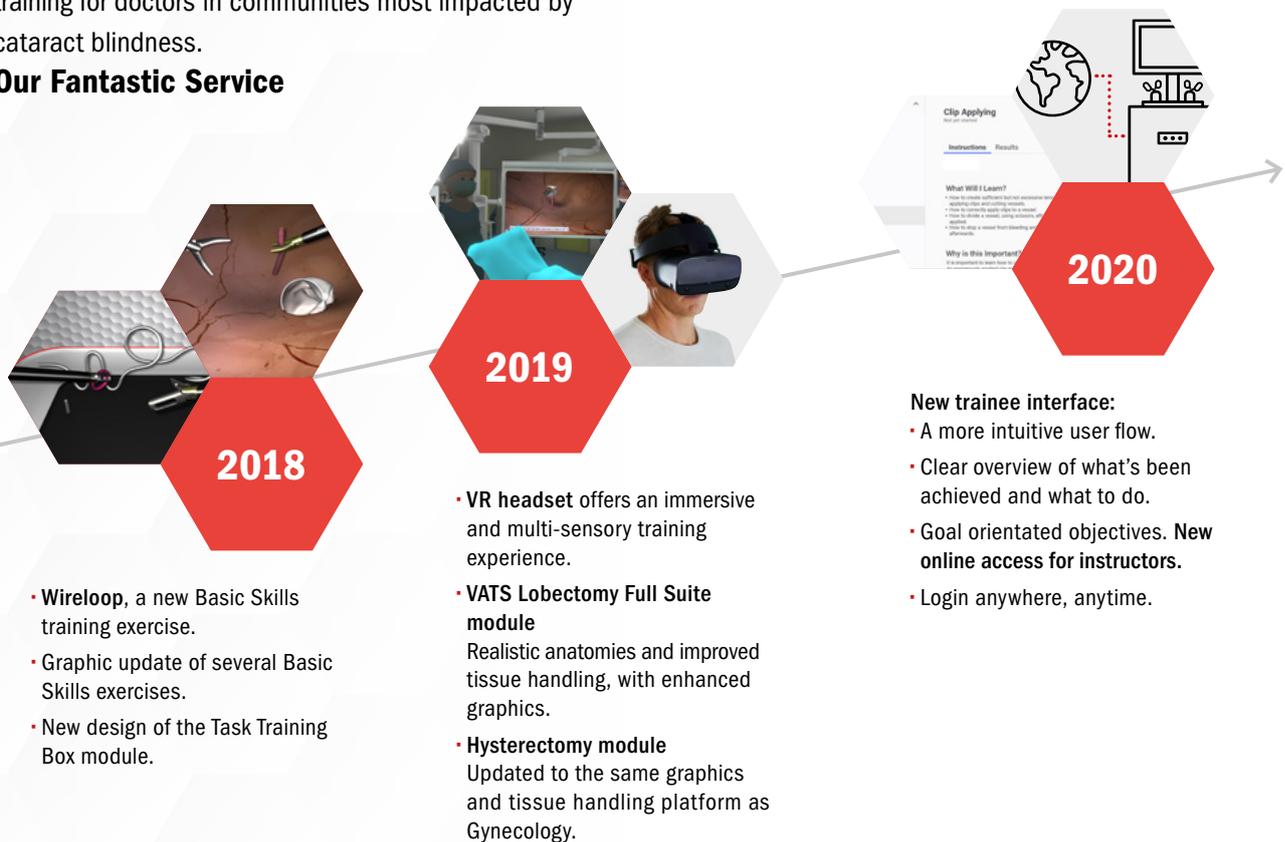
Our vision is that every patient undergoing a medical procedure is certain that the care giver is trained and certified in a simulated environment.

Our Partnerships

We work with many industrial partners to develop different types of medical simulation devices, from robotic-assisted surgery to ultrasound simulation. We also partner with a charity called Help Me See and provide eye surgery simulation training for doctors in communities most impacted by cataract blindness.

Our Fantastic Service

With Surgical Science, you are getting the best and latest simulation technology available. Issues are rare, but if they do, our dedicated service team will make sure your simulator is back working in no time.



We are the only company that offer annual updates with significant module additions, updates and improvements.

References

1. Proficiency-based virtual reality training significantly reduces the error rate for residents during their first 10 laparoscopic cholecystectomies. Ahlberg et al Am J Surg. 2007 Jun;193(6):797-804.
2. Effect of virtual reality training on laparoscopic surgery: randomised controlled trial, Larsen Christian R, Soerensen Jette L, Grantcharov Teodor P, Dalsgaard Torur, Schouenborg Lars, Ottosen Christian et al BMJ 2009; 338 :b1802.
3. LapSim® more effective than a box trainer, Youngblood PL et al, J Am Coll Surg. 2005 Apr;200(4):546-51.



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