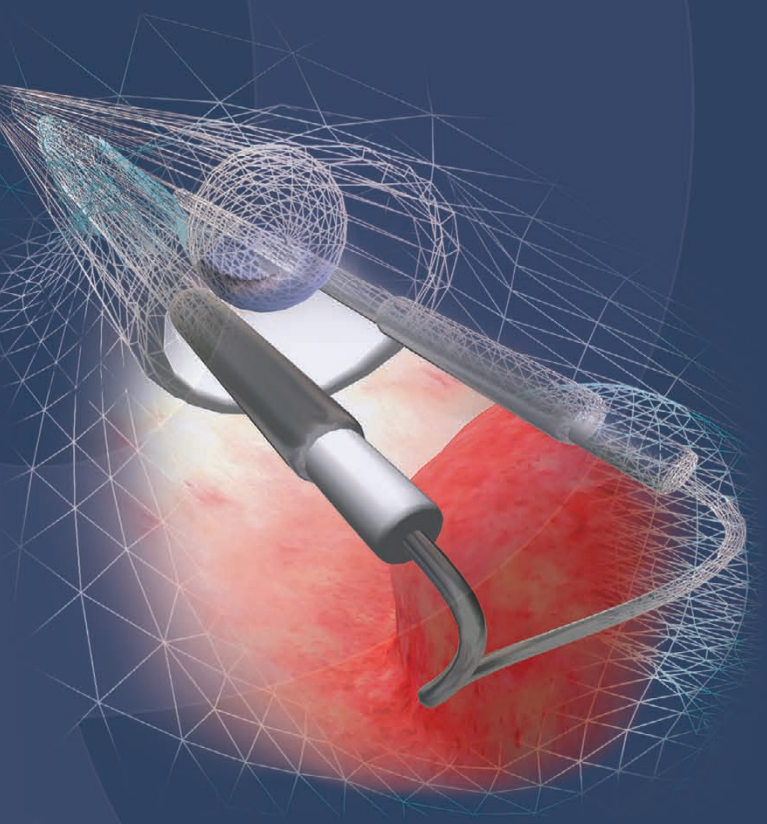


VirtaMed HystSim™

Experience Hands-on Diagnostic and Operative Hysteroscopy

Simbionix and VirtaMed have joined forces to provide surgeons in OB/GYN the most advanced training system available for diagnostic and therapeutic hysteroscopy. A study by Bajka et al [1] has shown that the HystSim™ simulator provides highly realistic and useful training for hysteroscopic surgery, with high acceptance ratings for both experienced and novice surgeons.

The VirtaMed HystSim™ hysteroscopy training system is a comprehensive educational solution. Quality didactic tutorials are used to introduce and explain "best practice" in core procedural techniques. This is followed by a high fidelity simulation providing a realistic hands-on experience that includes mastering instruments and managing complications. Multiple, complete hysteroscopy procedures are available to provide a range and depth of relevant pre-clinical experiences. Meaningful and useful objective feedback facilitates and completes the learning process to provide consistent, efficient and cost-effective results that are difficult to achieve using traditional teaching methodologies.

[1] ("Evaluation of a new virtual-reality training simulator for hysteroscopy". Bajka et al. Surgical Endoscopy. 2008)

Simbionix™
Simulation to Advance Clinical Performance

VIRTAMED
WE SIMULATE REALITY

Platform

The VirtaMed HystSim™ exemplifies our commitment to provide educators and clinicians with flexible, cost-effective solutions suitable for various settings. The system setup maximizes the training benefits of high end simulation and a complete educational solution. A high-end PC and two screens are based on a height adjustable monitor stand for simulation control and the procedural view.

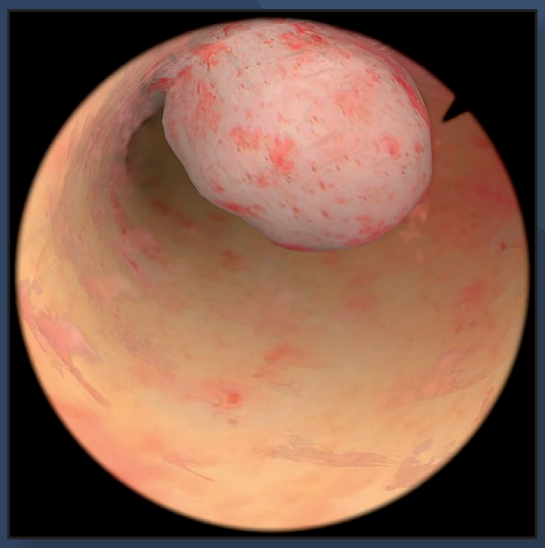
An Original Resectoscope

An adapted, original resectoscope is used to provide a complete simulation experience and to facilitate familiarization with hysteroscopic instruments. As in real life, the resectoscope features:

- In - and outlet valves for fluid handling
- Three virtual cameras: 0°, 12° and 30° for diagnostic and therapeutic procedures including a focus wheel
- A passive working element for electro-surgery including a foot pedal for electrosurgical cutting and coagulation in simulated procedures

A Comprehensive Hysteroscopy Training Program

VirtaMed HystSim™ features 4 different virtual reality simulation training modules presenting a comprehensive hysteroscopy training program for diagnostic and therapeutic procedures. Different pathologies and natural anatomical variations, usually encountered over years of practice, can be trained effectively in a compressed period of time in a relaxed and safe training environment.
The 32 virtual patients available in the simulation provide many hours of interesting and relevant pre-clinical experience, and facilitate training to proficiency in a variety of interventional techniques.
Easy diagnostic cases and small polyps provide an ideal learning environment for novice surgeons, while challenging fibroids allow more experienced surgeons to try new techniques and to maintain surgical proficiency. It's also possible to start emergency scenarios in order to challenge advanced students.

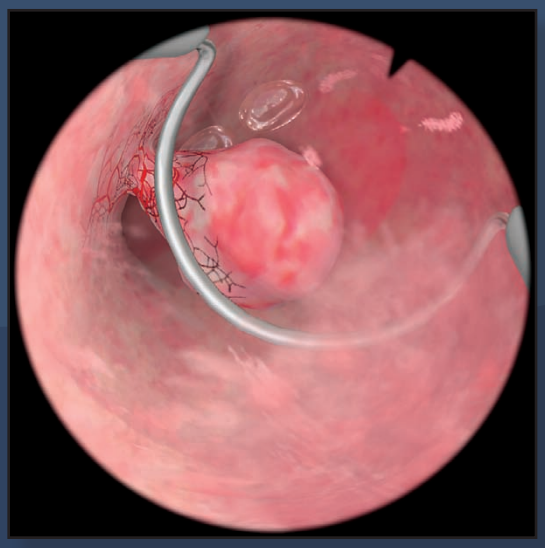


Diagnostic Hysteroscopy

The module offers 12 virtual patients with varying pathologies and with different levels of difficulty. The trainee gains experience in the usage of the angled optics, the way to establish clear view and learns to visualize the entire cavity in a safe environment.

Objectives:

- To establish uterine distension and clear viewing conditions
- To confirm the correctly placed hysteroscope by identifying the right and the left tubal orifice
- To inspect the uterine cavity completely by directing the camera efficiently over the entire endometrial surface while maintaining clear view
- To describe all visible pathologies

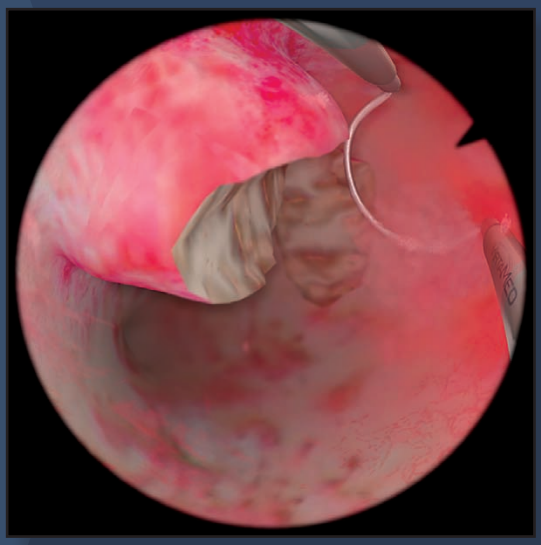


Polyp Removal

The module offers 8 virtual patients with various polyps in different position and aims at providing training for the first steps in operative hysteroscopy using the loop electrode.

Objectives:

- To inspect the cavity completely and to describe visible pathologies
- To cut the polyp with the cutting loop. If the polyp is not larger than the hysteroscopic sheath, try to cut the stalk directly. If it is larger, cut it in chips
- To remove the stalk completely, while preserving the healthy tissue
- To remove the cut pieces from the cavity
- To perform a safety inspection at the end of the procedure

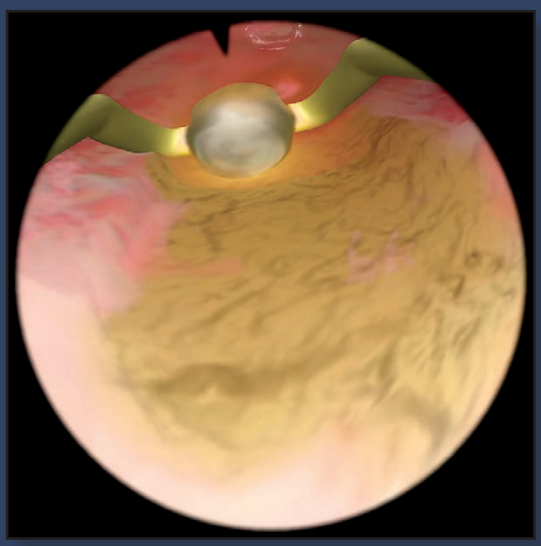


Myomectomy

The module offers 8 virtual patients with varying type of submucosal fibroids (type 0) in different positions and with different levels of difficulties.

Objectives:

- To inspect the cavity completely and to describe visible pathologies
- To cut myoma in chips with safe handling of the loop electrode
- To remove cut pieces from the cavity
- To coagulate bleeding sources
- To perform a safety inspection at the end of the procedure



Rollerball Endometrial Ablation

Despite the advent of global ablation devices, rollerball endometrial ablation remains the gold standard for the permanent treatment of abnormal uterine bleeding. It is performed under direct vision, and provides both diagnostic and therapeutic intervention for abnormal uterine bleeding.

The module contains 4 different virtual patients with varying shapes of uterine cavities. Endometrial ablation with the rollerball is an ideal exercise to gain practice in electrosurgery in all positions and in the entire uterus.

Objectives:

- To inspect the cavity completely and to describe visible pathologies
- To use the rollerball in a systematic way to ablate the complete endometrial surface, while not ablating the endocervix
- To perform a safety inspection at the end of the procedure

A Complete Educational Solution

In addition to hands-on experience of complete hysteroscopy procedures, the VirtaMed HystSim™ hysteroscopy training program provides a set of educational aids making it a complete educational solution!

Didactic Tutorials

Designed to teach procedural techniques and to maximize learning success.

Simulation of Complication Scenarios

The VirtaMed HystSim™ simulates all relevant complications in hysteroscopy during the procedure. Establishing and maintaining a clear view is an essential challenge in hysteroscopic surgery. The HystSim™ realistic simulation of bleeding provides a unique training environment for the detection and coagulation of bleeding sources as well as fluid-handling without putting an actual patient at risk.
Learners experience and react to one of the most common hysteroscopy complications during simulation; Perforation of the uterine cavity. Once a perforation occurs in the simulation, the cavity cannot be established and the learner is required to terminate the procedure, recording the perforation in the learner's feedback report.
A unique 'Instructor Control' allows creating bleeding, perforation or emergency scenarios (instrument failure, fluid overflow) on demand during a training session.

Realistic Simulation of Hysteroscopic Instruments

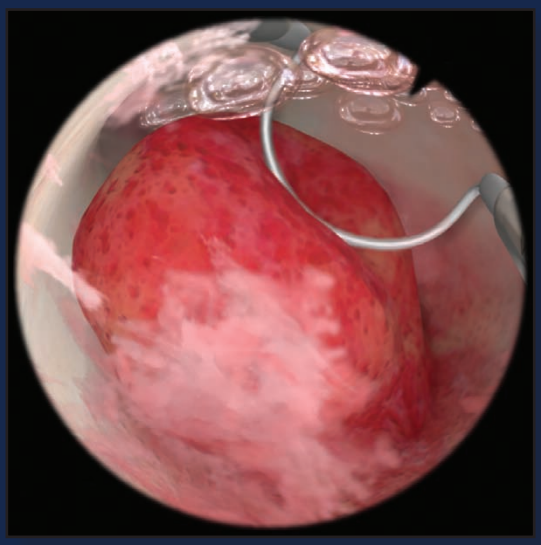
The simulation system uses a real resectosope to facilitate practicing instrument handling during hysteroscopy. A comprehensive variety of anatomical variation and pathologies enable mastering the techniques of hysteroscopy to proficiency.

Objective Performance Feedback

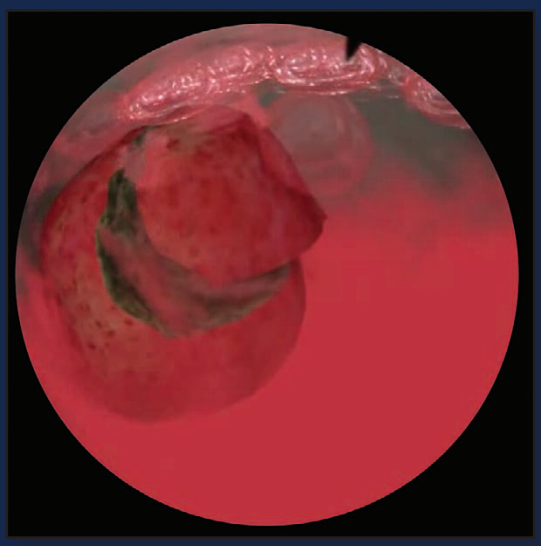
The VirtaMed HystSim™ provides highly realistic and useful training for hysteroscopic surgery, with high acceptance ratings for both experienced and novice surgeons (Bajka et al [1]).

Debriefing reports provide objective performance assessment and optional expert-defined scores regarding visualization, economy, safety and fluid handling.
Images provide further learning aids, visualizing the instrument path and the visualized uterine surface. A movie allows replaying the complete intervention.

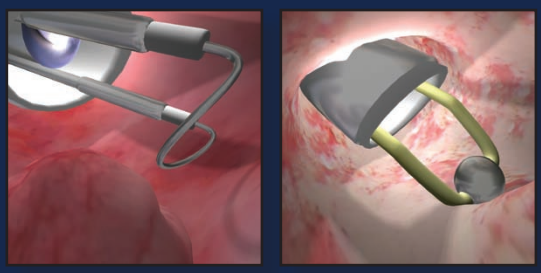
[1] ("Evaluation of a new virtual-reality training simulator for hysteroscopy". Bajka et al. Surgical Endoscopy. 2008)



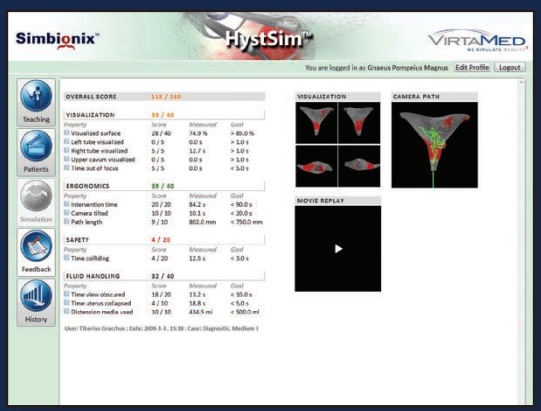
Myomectomy



Bleeding



Hysteroscopy Instruments



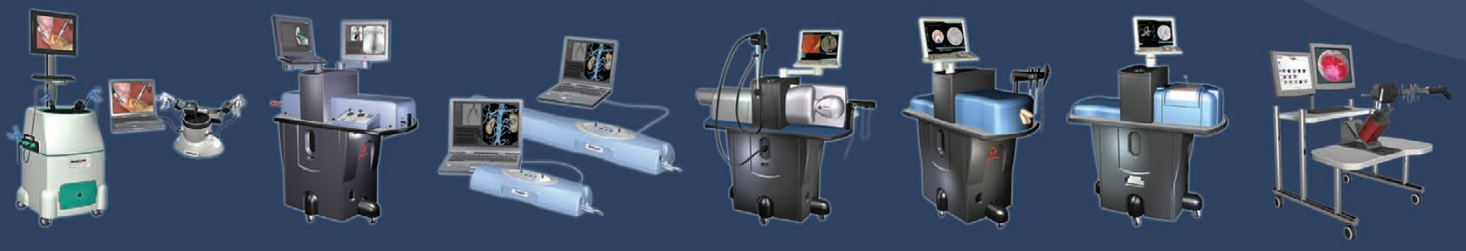
Objective Performance Reports

Simbionix™

The SIMBIONIX Line of Medical Training Simulators

Simbionix is a multinational medical simulation company with headquarters in Cleveland, Ohio. The company has been developing and producing PC based training simulators for Minimally Invasive Surgery (MIS) since 1997. Today, with an impressive product line of simulators, the company is the leader in medical simulation for MIS.
The Simbionix team includes experts in 3D graphics, image processing and design engineering, coupled with a marketing and sales team with a customer-first orientation.

Visit our web site for more information on the company
and our product line: www.simbionix.com



LAP Mentor™ ANGIO Mentor™ GI Mentor II™ URO Mentor™ PERC Mentor™ VirtaMed HystSim™

Headquarters:
Simbionix USA Corp.
11000 Cedar Ave, Suite 210,
Cleveland, OH 44106 USA
Tel +1-216-229-2040,
Fax +1-216-229-2070,
Toll-free: 1-866-SIMBIONIX,
or +1-866-746-2466
infousa@simbionix.com

Subsidiary:
Simbionix Ltd.
6 Hamelacha St., Northern
Industrial Zone, Lod 71520
Israel
Tel +972-8-9211177,
Fax +972-8-9211188
info@simbionix.com

Simbionix Denver Division:
1422 Delgany, Suite 101,
Denver, CO 80202 USA
Tel: +1-303-413-0201,
Fax: +1-303-413-0251
www.etrinsic.com

www.simbionix.com

About VirtaMed

VirtaMed is a Swiss based company with an interdisciplinary background in medicine and engineering. VirtaMed's mission is to develop state-of-the-art training tools for endoscopic surgery of highest possible realism, all with the ultimate goal to improve the quality of patient care.

VirtaMed AG
Technoparkstrasse 1, 8005 Zurich, Switzerland
Tel +41 44 500 96 90, Fax +41 44 500 96 94
info@virtamed.com

www.virtamed.com

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