

第4条 各領域の審査委員選出方法は以下のとおりとする。

1) 消化器・一般外科領域の審査委員は消化器・一般外科領域技術審査委員選定委員会が、審査、推薦する。また、申請に際しては、第15条に定める書類のうち、第3項(履歴書)、第4項(内視鏡外科手術関連業績目録)の他に、日本外科学会ならびに日本消化器外科学会あるいは専門分化した学会における専門医認定証(写)を提出するものとし、第15条第1項、第2項および第5項は適用されない。

なお、細目に関しては別途、「消化器・一般外科領域技術認定制度細則」に規定する。

2) 呼吸器外科領域、および整形外科領域の審査委員は、規則第14条各号ならびに施行細則第3条に定める有資格者の中から、各領域の制度委員により審査、推薦する。

泌尿器科領域の審査委員は、第14条各号ならびに施行細則第3条に定める有資格者の中から、日本泌尿器科学会/日本 Endourology・ESWL 学会泌尿器腹腔鏡技術認定制度委員会が、審査、推薦する。

産科婦人科領域の審査委員は、第14条各号ならびに施行細則第3条に定める有資格者の中から、日本産科婦人科内視鏡学会技術認定制度委員会が、審査、推薦する。

第5条 泌尿器科領域および産科婦人科領域の審査委員の更新は、それぞれ日本泌尿器科学会/日本 Endourology・ESWL 学会泌尿器腹腔鏡技術認定制度委員会と日本産科婦人科内視鏡学会技術認定制度委員会が審査、更新し、制度委員会に報告する。

第6条 審査委員および技術認定更新条件に関する細則

1) 審査委員の更新に際して、規則第17条第2項を満たすことができない場合には、その理由書を添付して更新申請を行うことができる。

2) 技術認定更新に際して、規則第24条第2項を満たすことができない場合には、その理由書を添付して更新申請を行うことができる。

第7条 各領域の技術認定申請資格は次に定めるとおりとする。

1) 消化器外科・一般外科領域

①日本外科学会専門医であること。

②日本外科学会専門医取得後、2年以上内視鏡外科の修練を行っていること。

③手術実績に必要な最小の目安は胆嚢摘出術50例以上あるいは大腸切除20例以上を術者あるいは指導者として経験していること。また胆嚢摘出術のみならず、ある程度の advanced surgery の症例を経験していること。

④本学会ならびに関連学会が主催する、あるいはこれら学会が公認あるいは後援する内視鏡外科に関する教育セミナーに参加していること。

⑤各領域の内視鏡外科手術に関する十分な業績を有すること。

2) 呼吸器外科領域

①呼吸器外科専門医であること。

②胸腔鏡下手術を術者あるいは指導者として100例以上、または肺葉切除術を20例以上経験していること。

③本学会ならびに関連学会が主催する、あるいはこれら学会が公認あるいは後援する内視鏡外科に関する教育セミナーに参加していること。

④内視鏡外科手術に関する十分な業績を有すること。

3) 泌尿器科領域

①日本泌尿器科学会専門医であること。

②日本 Endourology・ESWL 学会会員であること。

③日本泌尿器科学会専門医取得後、2年以上内視鏡外科の修練を行っていること。

④体腔鏡下腎摘除術(用手補助下を含む)または体腔鏡下副腎摘除術を独力で遂行できる技術を持っていること。

⑤体腔鏡下尿管手術(用手補助下を含む)または体腔鏡下副腎摘除術、あるいはこれら

に準じる泌尿器腹腔鏡手術を、主たる術者として20例以上経験していること。

⑥本学会、日本泌尿器科学会、日本 Endourology・ESWL 学会が主催する、あるいはこれらの学会が公認する、泌尿器腹腔鏡手術に関する教育セミナーに参加していること。

⑦日本泌尿器科学会、日本 Endourology/ESWL 学会泌尿器腹腔鏡技術認定を受けていること。

4) 産科婦人科領域

①日本産科婦人科学会専門医であること。

②日本産科婦人科内視鏡学会会員であること。

③日本産科婦人科学会専門医取得後、2年以上産科婦人科内視鏡手術の修練を行っていること。

④腹腔鏡下手術を術者あるいは指導者として100例以上の経験を有するもの。

⑤本学会、日本産科婦人科学会ならびに日本産科婦人科内視鏡学会が主催する学会、あるいはこれらの学会が公認する、産科婦人科内視鏡手術に関する教育セミナーに参加している。

⑥内視鏡外科関連学会での十分な活動をしていること。

⑦日本産科婦人科内視鏡学会の技術認定を受けていること。

5) 整形外科領域

①日本整形外科学会専門医であること。

②日本整形外科学会専門医取得後、2年以上内視鏡外科の修練を行っていること。

③通常の脊椎手術を20例以上経験した上に、内視鏡外科手術20例以上を術者として経験していること。

④本学会ならびに日本整形外科学会、日本脊椎内視鏡低侵襲外科学会などが主催する学会、あるいはこれら学会が公認あるいは後援する内視鏡外科に関する教育セミナーに参加していること。

⑤内視鏡外科手術に関する十分な業績を有すること。

第8条 各領域の技術認定の申請に際して提出するビデオは以下のとおりとする。

1) 呼吸器外科では、術者を担当した胸腔鏡下肺葉切除術の未編集ビデオとする。

2) 泌尿器科領域では、体腔鏡下腎摘除術(用手補助下を含む)または体腔鏡下副腎摘除術の未編集ビデオとする。

第9条 日本泌尿器科学会/日本 Endourology・ESWL 学会あるいは日本産科婦人科内視鏡学会で、本制度に準じて審査・認定を受け、さらに本学会技術認定を希望する者は、以下の書類を制度委員会に提出する。この場合の手数料は別に定める。

1) 技術認定申請書(領域を明記)

2) 泌尿器科または産科婦人科領域で技術認定を受けたことを証明する書類

第10条 泌尿器科領域および産科婦人科領域の技術認定更新は、規則第23条に準じて日本泌尿器科学会/日本 Endourology・ESWL 学会泌尿器腹腔鏡技術認定制度委員会あるいは日本産科婦人科内視鏡学会技術認定制度委員会に審査を受け、以下の書類を制度委員会に提出する。

1) 更新の申請書類

2) 泌尿器科または産科婦人科領域で更新を受けたことを証明する書類

(附則) この細則は平成*年*月*日から施行する。

会員 各位

日本内視鏡外科学会「技術認定制度委員会」

委員長 木村 泰三

「日本内視鏡外科学会技術認定制度」実施のお知らせ

<はじめに>

さて、本年度の技術認定申請の募集を行うこととなりましたので、お知らせ申し上げます。

8月15日より募集開始し、10月31日（消印有効）を以って締切りとさせていただきます。

なお、本制度は本制度規則並びに施行細則にありますように、各関連領域との協力の下に立ち上げた制度ですので、領域により申請方法が異なります。

また、消化器・一般外科領域については募集開始・締切りを上記の通りとし審査致しますが、その他の領域につきましては申請後、理事会開催の際に承認となりますので、随時受付し理事会開催時まで事務局にて申請書をお預かり致します。

つきましては、本制度規則、施行細則、手引きなどをご参照の上、正しい手順でご応募下さいませようお願い申し上げます。

<技術認定申請の手順>

◎ 消化器・一般外科領域・・・手引きを熟読の上、書式、必要書類、申請ビデオに認定申請料 30,000 円の払込受領書のコピーを添えて提出して下さい。

◎ 産科婦人科領域……………日本産科婦人科内視鏡学会が実施している技術認定を取得し、その認定証のコピーに、本学会認定申請書、認定申請料 5,000 円の払込受領書のコピーを添えて提出して下さい。日本産科婦人科内視鏡学会技術認定制度については以下にお問い合わせ下さい。

【日本産科婦人科内視鏡学会】

〒113-0034 東京都文京区湯島 2-18-6 夏目ビル(株)メディカルサプライジャパン内

TEL 03-3818-2177 / FAX 03-3815-2644

ホームページ <http://square.umin.ac.jp/jsgoe>

◎ 泌尿器科領域……………(社)日本泌尿器科学会／日本 Endourology・ESWL 学会が実施している技術認定を取得し、その認定証のコピーに、本学会認定申請書、認定申請料 5,000 円の払込受領書のコピーを添えて提出して下さい。(社)日本泌尿器科学会／日本 Endourology・ESWL 学会泌尿器腹腔鏡技術認定については、以下にお問い合わせ下さい。

【日本 Endourology・ESWL 学会】

〒113-0034 東京都文京区湯島 2-17-15 齊藤ビル 5F

TEL 03-3814-7921 / FAX 03-3814-4117

ホームページ <http://square.umin.ac.jp/jsee/>

- ◎ 呼吸器科領域……………只今、日本呼吸器外科学会との協力により準備中です。準備が整い次第、ホームページ上にてお知らせします。

- ◎ 整形外科領域……………(社)日本整形外科学会が実施している技術認定を取得し、その認定証のコピーに、本学会認定申請書、認定申請料5,000円の払込受領書のコピーを添えて提出して下さい。日本整形外科学会技術認定制度については以下にお問い合わせ下さい。
 [日本整形外科学会]
 社団法人日本整形外科学会
 〒113-8418 東京都文京区本郷2丁目40番8号THビル 2・3・4階
 TEL 03-3816-3671 / FAX 03-3818-2337
 ホームページ <http://www.joa.or.jp>

- ◎ 小児外科領域……………只今、日本小児外科学会、日本小児内視鏡手術研究会との協力により準備中です。準備が整い次第、ホームページ上にてお知らせします。

- ◎ その他の領域……………現時点での実施予定はございませんが、今後関連領域における内視鏡下手術の発展に伴い、実施が検討された場合には随時ホームページにてお知らせします。

<申請料金振込先>

みずほ銀行 本郷支店 普通 2526974

日本内視鏡外科学会 理事長 北島政樹 ニホンナイキョウガカクカイカジマサキ

<問い合わせ先・書類提出先>

[日本内視鏡外科学会事務局]

〒162-0802 東京都新宿区改代町26-1 有限責任中間法人学会支援機構内

TEL 03-5206-6007 / FAX 03-5206-6008

E-MAIL jses@asas.or.jp

ホームページ <http://www.jses.org/>

※ 本学会技術認定申請には本学会会員であることを要しますが、未加入である場合にはホームページ上よりご入会いただくか、本誌巻末の入会申込書にてお申込み下さい。なお、本学会入会には会費納入が条件となっております。会費請求書は入会申込書提出後に発送され、また入金確認にも時間が掛かりますので、応募締切日まで余裕を持ってご入会下さい。

資料8

手術訓練用VRシミュレータ

表4 手術訓練用VRシミュレーター一覧

「Lap Sim」GADELIUS社HPより引用
<http://www.gadelius.com/index.cfm?category=19>

Surgical Science develops high-quality tools for the Assessment, Training and future Certification of medical professionals.

Using cutting-edge simulation technology and wide-ranging knowledge of the needs of the medical community, we are committed to developing tools that will help train safer surgeons faster. Systems that build skills that actually transfer into the operating room.

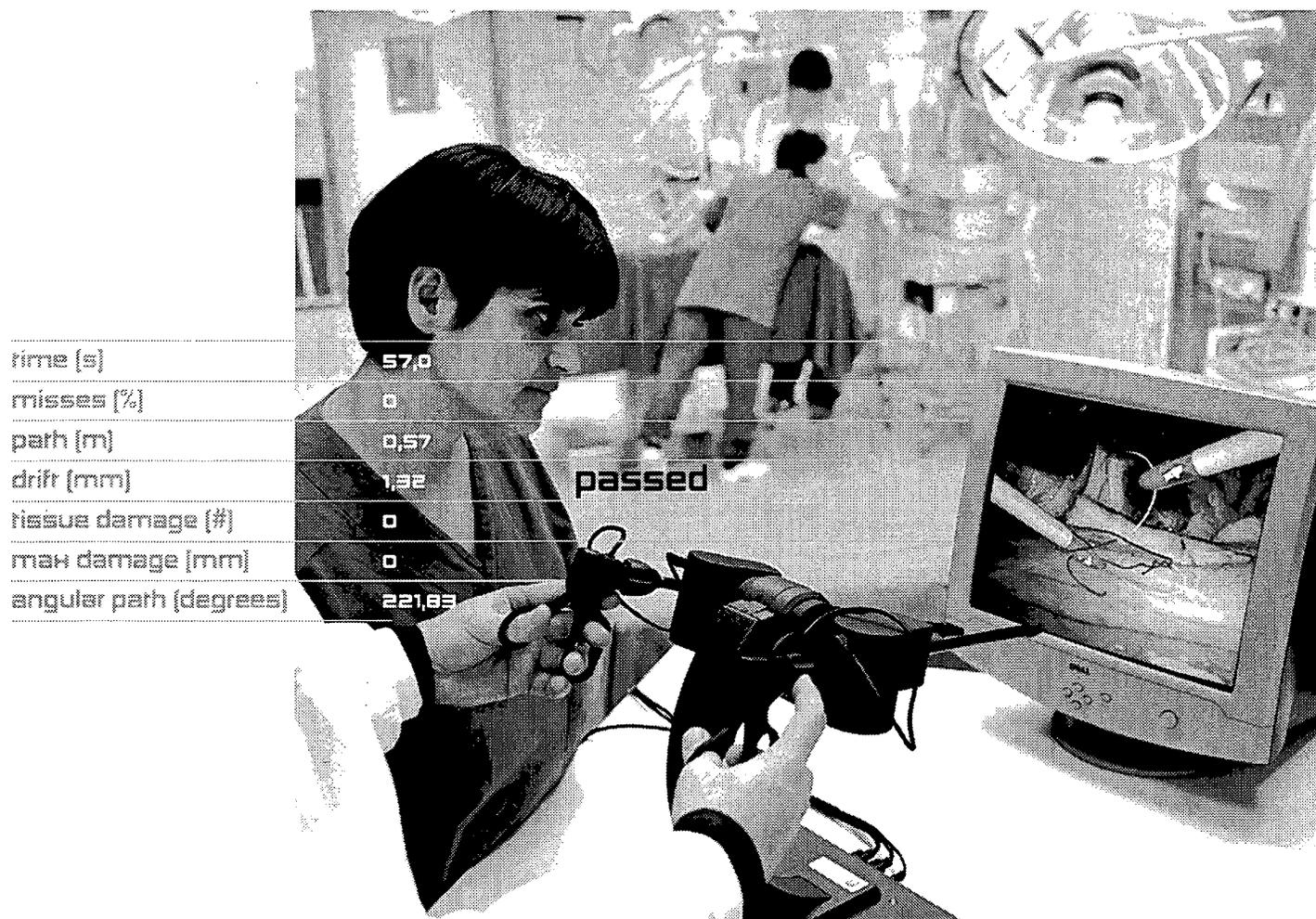
Based in Göteborg, Sweden, we maintain close ties to the Göteborg University. Through ongoing research and close cooperation with the medical community, we will continue to provide professionals worldwide with the means to improve surgical training and practice.

OUR MISSION IS
**SAFER
SURGEONS
FASTER**

surgicalscience

Haraldsgatan 5, SE 413 14 Göteborg, Sweden. Phone +46 31 741 65 60. info@surgical-science.com. WWW.SURGICAL-SCIENCE.COM

Enhancing surgical skills without cutting skin.



| | |
|------------------------|--------|
| time (s) | 57.0 |
| misses (%) | 0 |
| path (m) | 0.57 |
| drift (mm) | 1.32 |
| tissue damage (#) | 0 |
| max damage (mm) | 0 |
| angular path (degrees) | 221.83 |

passed

surgiscience
LapSim® Basic Skills



has come of age.

Hands-on practice in the OR is an effective way of building and maintaining laparoscopic surgery skills, for both novices and experienced surgeons. The problem is: with a live patient on the table, learning by trial-and-error is simply not an option. And, using animal models may not be desirable or practical either, for a number of possible reasons.

Fortunately, now there's a safe and effective alternative. It's called LapSim® by Surgical Science.

LapSim Basic Skills is the first of a series of digital tools for the assessment, training and possible certification of surgeons.

It replaces the vulnerable patient with expendable pixels. By digitally recreating the procedures and environment of minimally invasive abdominal surgery, LapSim Basic Skills provides a realistic virtual training environment and an effective learning experience. But that's not all.

Extensive task and course-tailoring functions, along with advanced features for the recording and processing of training results, provide a means of benchmarking surgical skills against a set of standards. With LapSim Basic Skills, certified laparoscopy training is just around the corner.

LapSim is not the first digital laparoscopy trainer on the market. But it's the first fully mature system of its kind, both technically and practically. LapSim really works, and studies support our claims. Novice surgeons who train using LapSim develop skills that actually transfer into the OR.¹

With LapSim, the digital laparoscopy simulation system has come of age.

OUR MISSION IS
**SAFER
SURGEONS
FASTER**

¹Surgical Endoscopy (2002) 16:1324-1328.

A cost-effective tool for assessment, training and future certification.

LapSim provides the means to dramatically increase the amount of training and practice time available to both the aspiring surgeon and the experienced professional needing to keep his or her skills current. Using state-of-the-art 3D virtual reality technology, including interactive digitized video, LapSim will enable more surgeons to put in more training and practice time in a supremely cost-effective way. It will also allow assessment of a surgeon's skill, as well as provide a basis for future certified laparoscopy training.

With LapSim 2.0, the system reaches new heights of realism and flexibility. Featuring numerous tweaks, detail improvements and new features, as well as a new training module, the latest version expands the scope, as well as the training value, of LapSim considerably.

An expanding modular system

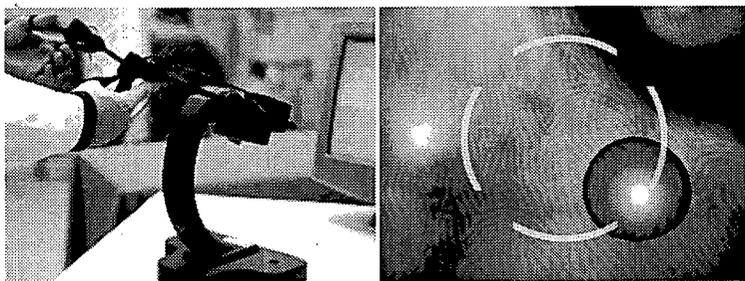
LapSim 2.0 contains eight training tasks, from basic camera navigation to suturing. Additional game-style navigation exercises provide added incentive for practice. As a modular system, LapSim is continuously being expanded and improved. Further upgrades featuring more tasks are continually in the pipeline. Surgical Science is committed to providing training tools that allow surgeons at all levels gain practical experience in a safe way. LapSim Basic Skills 2.0 is an important step in this progression.

The on-screen surgical instruments are manipulated using an instrument rig designed and manufactured by Immersion Inc., CA, USA. Essentially a specialized "joystick", the rig emulates the look and feel of real laparoscopic instruments. The system runs comfortably on a current standard PC (please refer to the system specifications on page 9). Pending the availability of suitable hardware, LapSim will incorporate force-feedback functions to further increase training realism.

Tailoring courses and tracking results

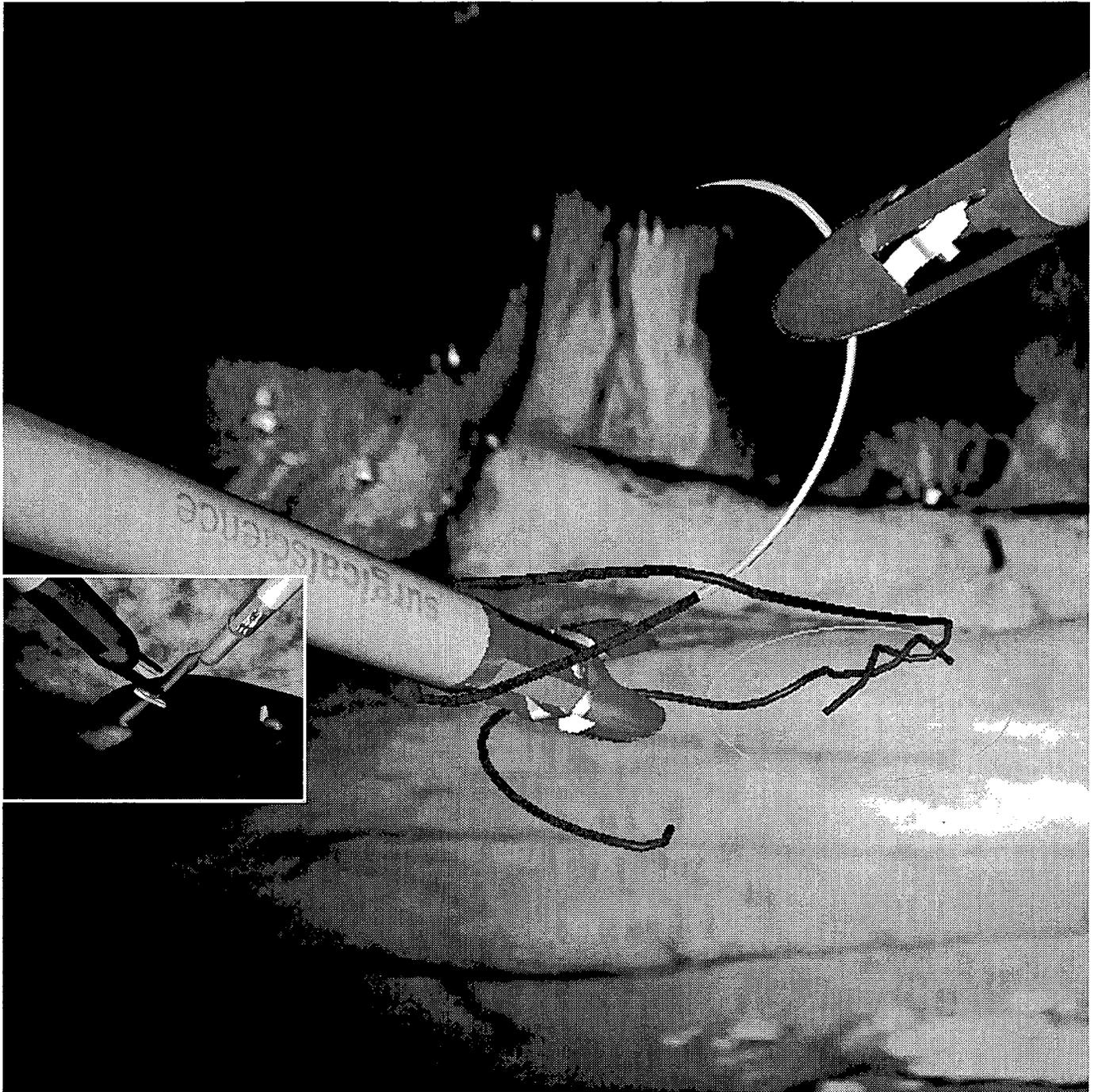
An important and unique feature of LapSim is its open-ended system for task and course customization and administration. Each training task can be edited in minute detail to provide each user with exactly the right challenge to suit his or her proficiency level. In the same way, courses consisting of a series of tasks may be tailored to the specific needs of a group of students or users. In LapSim 2.0, courses and curriculums may also be saved, exported and imported, facilitating course sharing between educators and institutions.

The particulars of each user and group of users are entered into a database. The training and examination results of each are entered into the database as the course progresses, providing the basis for accurate benchmark assessment of each surgeon's skill and ability.

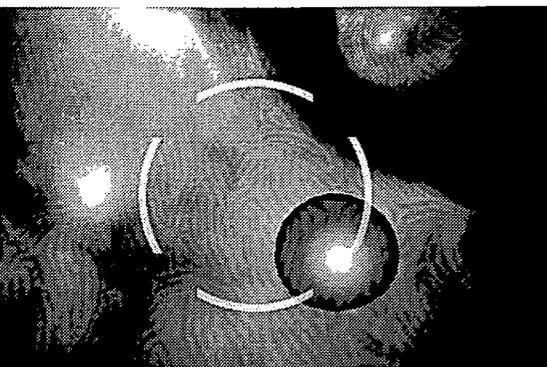


LapSim really works!

And most importantly, LapSim really does the job it was designed to do. Validation studies show that junior surgeons trained with LapSim are more proficient in the OR compared to those trained using conventional methods. Please read on for study abstracts.



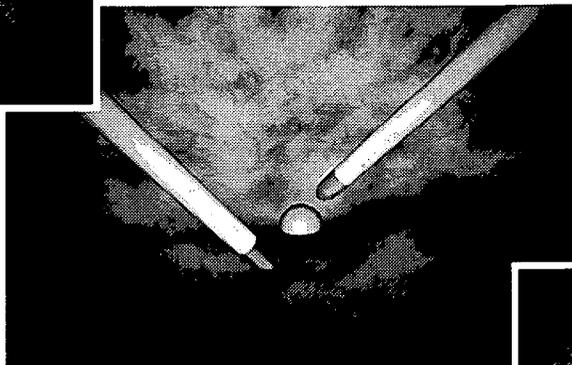
Current LapSim® Basic Skills training modules



Camera Navigation

Handling the camera is the first skill the aspiring surgeon has to master. Basic navigational skills and an initial feeling for how laparoscopic instruments are handled are developed.

The camera is the left instrument. The object is to find the red ball on the tissue surface, zoom up to it and match its size to the on-screen circle. The camera is then held steady until the ball disappears. The next ball appears, and the exercise is repeated.



Instrument Navigation

This module provides a safe environment in which to begin acquiring the skill of moving two instruments through three dimensions guided by a two-dimensional image.

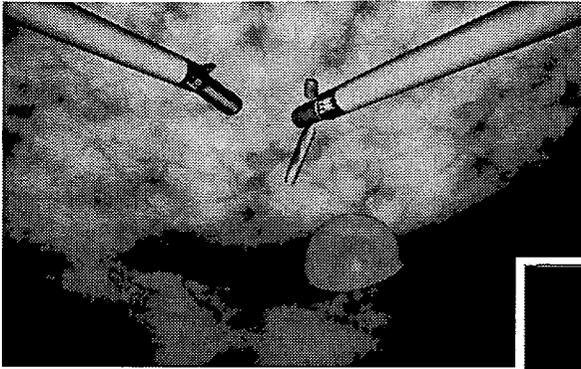
The camera is computer-controlled. The colors of the instruments correspond to the colors of the balls. When a ball appears, it is touched with the tip of the relevant instrument. The ball disappears, another appears, and the exercise is repeated.



Coordination

Using both hands in a coordinated manner is an essential skill for the laparoscopic surgeon. In this exercise, one hand controls the camera, the other an instrument. The object is to use the instrument while simultaneously moving the camera to monitor the process.

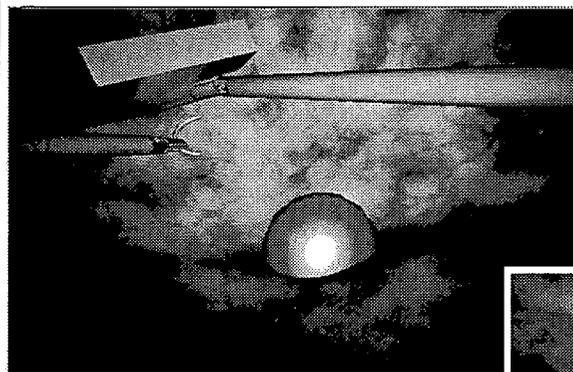
The appearing balls are picked up with the instrument and moved to a target with the camera following. When a ball is held completely inside the target, it disappears, and another ball appears.



Grasping

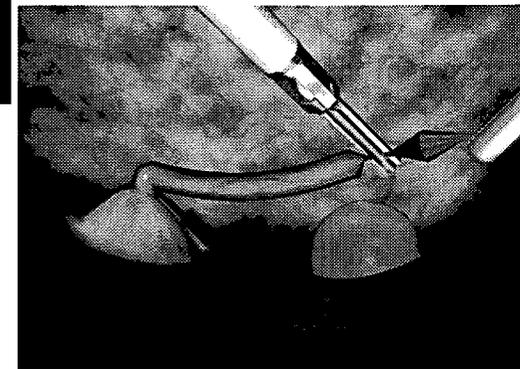
Here, the objective is to grasp, stretch and move blood vessels, using grasper instruments.

Red vessels must be grasped with the left grasper, green vessels with the right one. A vessel is grasped and moved towards the blue hemispherical target. When it is held still within the target area, the target changes color. The vessel is released and then disappears. Another vessel appears and the exercise is repeated.



Lifting & Grasping

This module combines two tasks. First, one instrument is used to lift a generic object off the underlying tissue surface. It has to be lifted correctly in order for it not to slip off the instrument. Inserting the instrument too far will result in tissue damage. Once the covering object is held securely, the other instrument is used to grasp another small object previously hidden underneath. The final step is moving the retrieved object into a target area and releasing it.

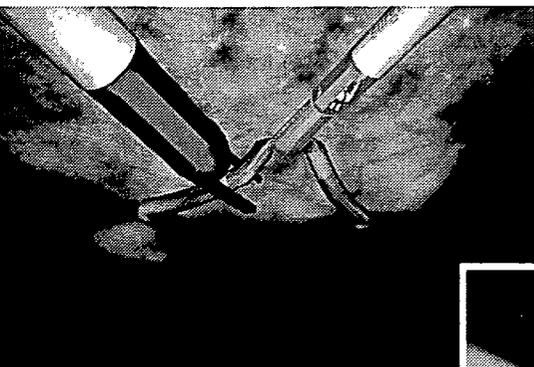


Cutting

This module introduces the student to cutting, using ultrasonic scissors or forceps. Accordingly, it features a third manipulation device: a foot pedal used to trigger the cutting instrument.

Ultrasonic scissors or forceps are selected on-screen. The second instrument is a grasper.

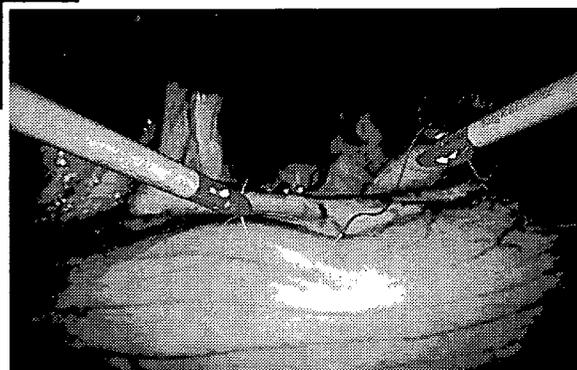
A vessel is grasped inside the green area. It is stretched until a blue segment becomes visible. The vessel is then cut through the blue area. The grasper is used to move the excised vessel section into a hemispherical "target".



Clip Applying

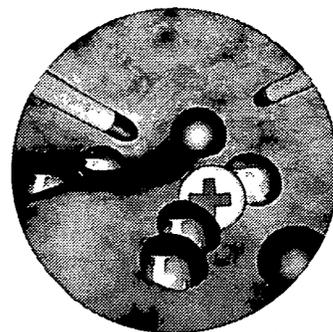
This module involves using multiple instruments, as well as increased elements of risk and stress. The instruments are clip instrument, grasper, scissors, and a suction device.

A vessel is grasped and a clip applied across the green area. The vessel is lifted, and scissors are used to cut it. An incorrectly applied clip, misguided cut, or vessel overstretching will result in bleeding, which must be stopped using the clip instrument, grasper and suction device. Any bleeding in excess of 2 litres indicates a failed exercise.



Suturing

Suturing is the most advanced basic laparoscopic skill featured in v 2.0. The module includes a realistic graphic environment, based on actual video recordings. In this exercise, the needle must be grasped correctly and inserted into the designated area. The thread is pulled through, and must then be tied twice in the correct manner. The digitized video "tissue" reacts realistically to the manipulations of the needle. The correct knot-tying procedure may be chosen to conform with national practices.



Precision & Speed

A light-hearted module with a serious intent. It puts precision and speed practice into a game-like context, complete with progressively more difficult "levels", scoring, time bonuses, etc.

The instruments used are two generic "pointers". The targets are red and green balls, indicating which instrument should be used to hit them. Blue targets must be hit with both instruments, gray ones avoided. Red cross-balls clear the level. As the game progresses, the tasks become more demanding with more targets, moving targets, etc.

...and more to follow.

LapSim's architecture allows for the progressive addition of new training modules. And since we are committed to ongoing expansion of the system, new modules are already under development.

Course and student administration and monitoring

LapSim Basic Skills is much more than a surgical procedure simulator. With LapSim, it is possible to build complete training curriculums. The software offers extensive functions for student administration and course preparation. LapSim keeps track of each student's progress, for the benefit of both teacher and students.

These functions set LapSim apart from other surgical simulators, and they form the basis of the accurate skill assessment and benchmarking that enable LapSim Basic Skills to be a tool for future certification of surgical ability.

Teacher functions

Each student's personal particulars are entered into LapSim's database, including name, login, date of birth, and handedness, an important factor when designing tasks. Training and examination results are recorded and displayed graphically for easy viewing. Each student's results may be viewed in minute detail, and by exporting them into standard spreadsheet formats, comparisons and evaluations can be made against a reference group.

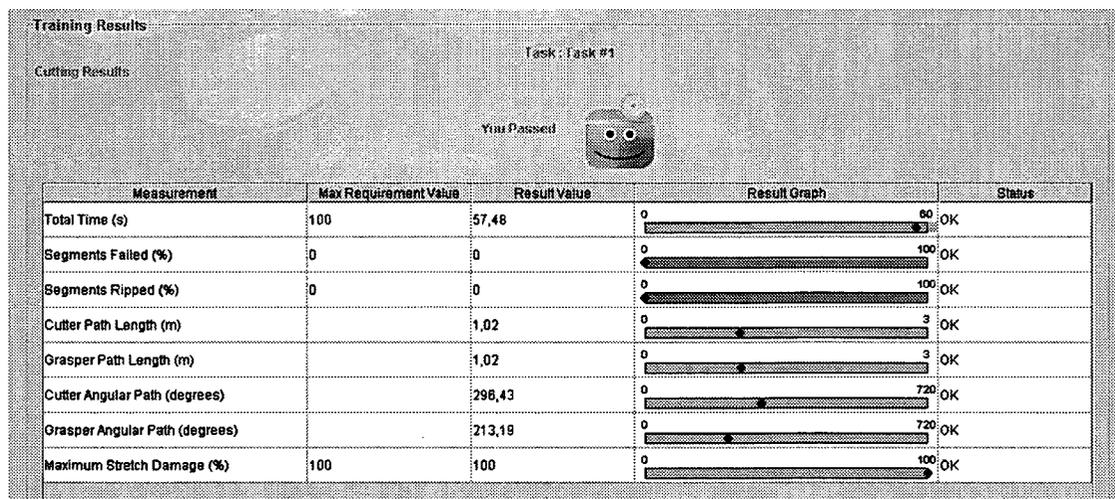
Students may be divided into classes or groups. Complete study courses can be designed for each student

individually, or for a group of students. Courses consist of tasks chosen and customized by the teacher, and are prepared using a simple, intuitive point-and-click interface. Course import-export functions make course and curriculum sharing simple and practical.

LapSim Basic Skills can be adapted to offer exactly the right level of challenge to each student, at each stage of the course. This means that the same exercise can be repeated at advancing difficulty levels as the student's proficiency increases.

Student functions

The student database is also accessible to the students using LapSim Basic Skills. By logging into the system using a personal login name and password, the student gains access to detailed information about his or her results and progress. The data is displayed in clear and simple graphics, and can be broken down into different parameters, including time spent on exercise, hit percentage, accuracy, tissue damage, etc. "Failed" or "passed" results are clearly displayed, allowing the student to concentrate on improving weak points.



The results of each training session and examination are displayed in detail, both numerically and graphically, along with an overall "grade" of pass or fail.

Validating LapSim® – does it improve skills in the OR?

At Surgical Science, we are anxious to validate the effectiveness of training with LapSim Basic Skills.

Currently, our system is undergoing a number of studies. So far, results are available from a study conducted by the Dept. of Surgery at the Sahlgrenska University Hospital in collaboration with the Man-Machine Dept. of the Chalmers University of Technology. The study shows that novice surgeons having trained with LapSim are more proficient when evaluated in a porcine model than those who have not. In other words, LapSim builds skills than can be transferred into the OR.

Systematic simulator training improves performance in laparoscopic surgical procedures¹

A. Hylander, P. Rhodin, E. Liljegren, H Lonroth Dept. of Surgery Sahlgrenska Univ Hospital, Chalmers Univ of Technology, Surgical Science Ltd, Gothenburg, Sweden

Hypothesis

To evaluate whether systematic simulator training of basic skills in laparoscopy improves performance in Minimally Invasive Surgery.

Method

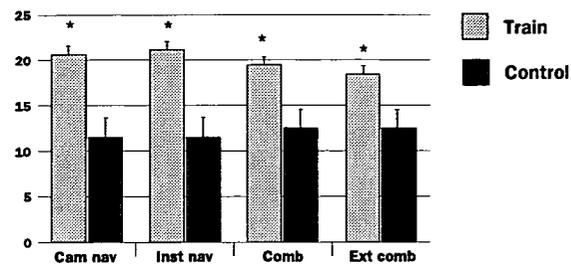
The study was prospective and randomized. A total of 24 students were included, 12 in the group training with LapSim and 12 in a control group. The groups were well balanced, according to the stratification variables. The junior surgeons trained for 2 hours per week for a period of 5 weeks. Evaluation was conducted in a porcine model.

Evaluation

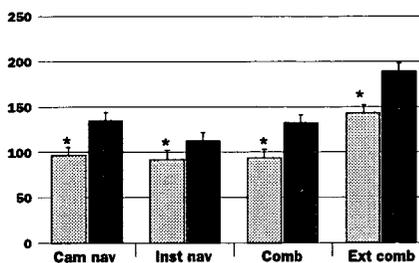
Results were evaluated using time registration, continuous video recording, as well as blind evaluation by independent experts.

¹Surgical Endoscopy (2002) 16:1324-1328.

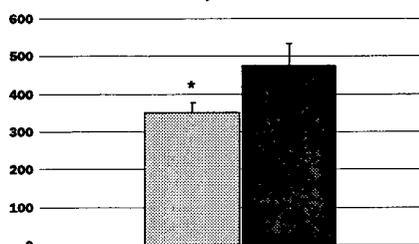
Expert Scoring (points)



Time consumption (seconds)



Pooled time consumption (seconds)



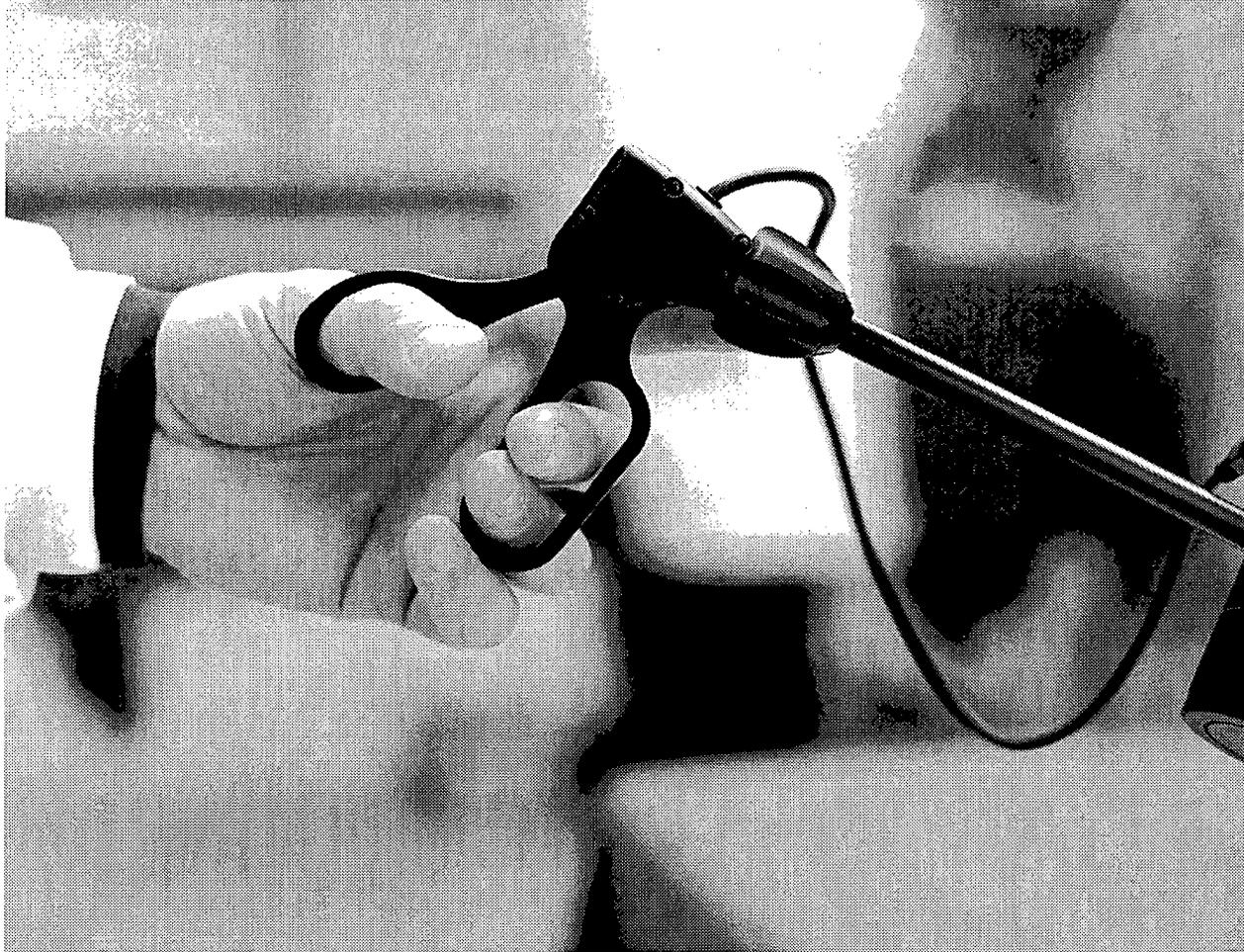
Conclusion

Systematic training with LapSim Basic Skills in surgically inexperienced students undertaking defined basic laparoscopic procedures in a porcine model results in a significantly improved performance rate and reduced time consumption.



| | |
|--------------------|------|
| time (s) | 57.0 |
| misses (%) | 0 |
| path (m) | 0.57 |
| drift (mm) | 1.32 |
| tissue damage (#) | 0 |
| max damage (mm) | |
| angular path (deg) | |

passed



Technical Specifications

The LapSim system can be freely scaled to suit the client's requirements, ranging from a single software license to complete multi-user systems including VLIs, server and network solutions.

Computer

Dual PIII 500, 128 MB RAM, 20 GB HD

Gfx card: NVIDIA GeForce 2, 3 or 4

Windows 2000

Network interface card

Single PIII 1GHz, 128 MB RAM, 20 GB HD

Gfx card: NVIDIA GeForce 2, 3 or 4

Windows 2000

Network interface card

Dell Inspiron 8100 Laptop

Gfx card: NVIDIA GeForce2Go/GeForce4Go 32 MB

Windows 2000

Network interface card

For more information, please contact
support@surgical-science.com.

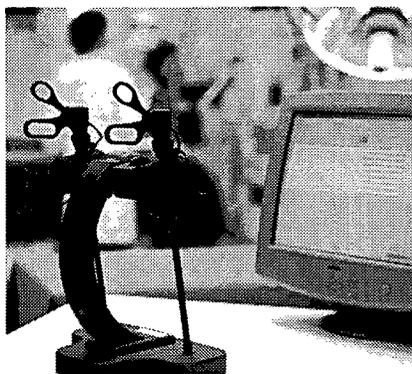
System Features

- Standard PC and Windows compatibility
- Simple, intuitive user interface
- Highly realistic 3D graphics
- Interactive digitized video background
- Expandable, modular architecture
- 8 customizable training tasks (v 2.0)
 - Camera navigation
 - Instrument navigation
 - Coordination
 - Grasping
 - Lifting & Grasping
 - Cutting
 - Clip applying
 - Suturing

- Game-style Precision & Speed training module
- Student and course database
- Extensive student administration functions
- Course creation and administration
- Course and curriculum export and import
- Detailed training and examination results, accessible by both teacher and students
- Result statistics with graphic display
- Customizable Excel format results export

External Hardware

Virtual Laparoscopic Interface (VLI) and/or Surgical Workstation by Immersion Inc.



The Immersion Virtual Laparoscopic Interface tracks the motion of a pair of surgical instruments through three-dimensional space. The surgical tools pivot about their insertion points, insertion and retraction are tracked, and each instrument can spin about its insertion axis. The open-close motion of the tool handle is also tracked.

Seeing is believing.
Watch the LapSim demo.