TRAINING WITH SIMULATION

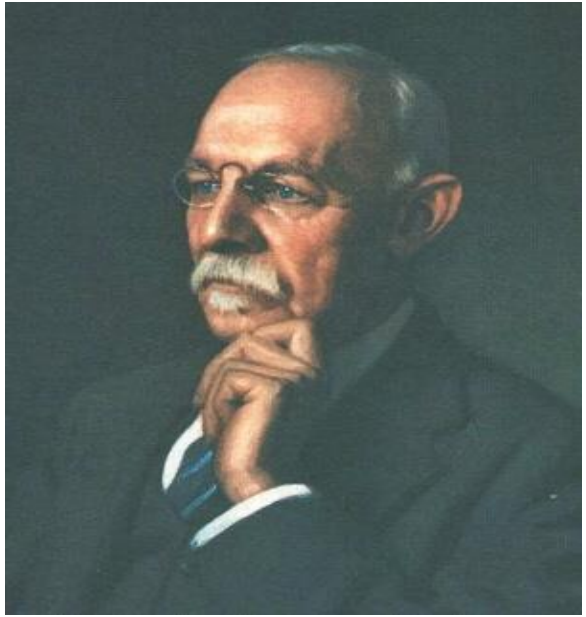
HOW SHOULD WE TRAIN THE SURGEONS OF TOMORROW?

RCSI

ROYAL COLLEGE OF SURGEONS IN IRELAND

SIWF FMH
ISFM

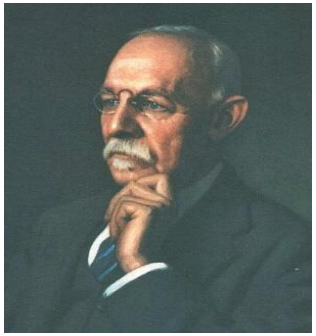
12 September 2018



Dr.William Halsted

THE APPRENTICESHIP MODEL OF TRAINING

APPRENTICESHIP IN SURGICAL TRAINING



William Halsted

Essential elements of apprenticeship

Repeated large-volume **practice**

(long hours/many years!!)

Relationship with trainer

“COMPETENCE” = “EXPERIENCE” (ie TIME SERVED)

CHALLENGES FOR SURGICAL EDUCATION AND TRAINING

- Duration of training (years)
- Working time restriction (hours)

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- Increasing technology in surgical practice
- Cancellation of elective surgery
- Service targets/ decreased time for training
- Changing public expectations

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- Duration of Training (years)
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- Service targets/ decreased time for training
- Changing public expectations
- Requirement to verify and document competence

THE APPRENTICESHIP SYSTEM

BUT: Was it *really* that good?

Much wasted time
Opportunity rather than defined curriculum
Assumption of competence
    Subjective assessment/ no assessment tools
    Personality based
Lack of standardisation across programmes
Inefficient learning methodologies

PATIENT SAFETY!

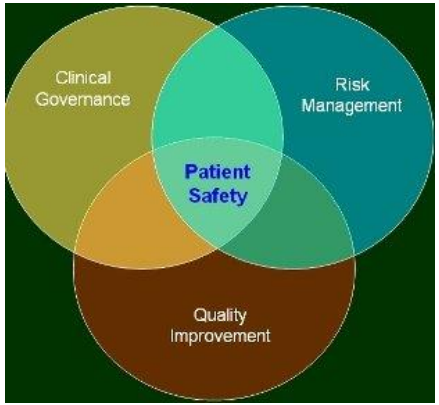
HOW SHOULD WE TRAIN THE SURGEONS OF TOMORROW?

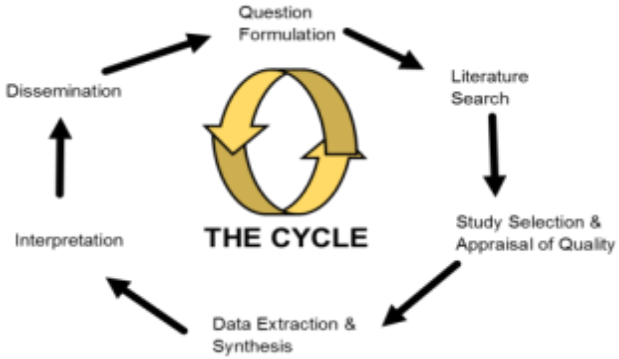
CHANGING TIMES: TECHNOLOGY

CHANGING TIMES: PEOPLE

CHANGING TIMES: HEALTHCARE PROCESS

Healthcare Economics
Healthcare Management
Process Improvement/LEAN
Clinical Governance/Pt Safety
Information Technology
Surgical Innovation
Global Surgery



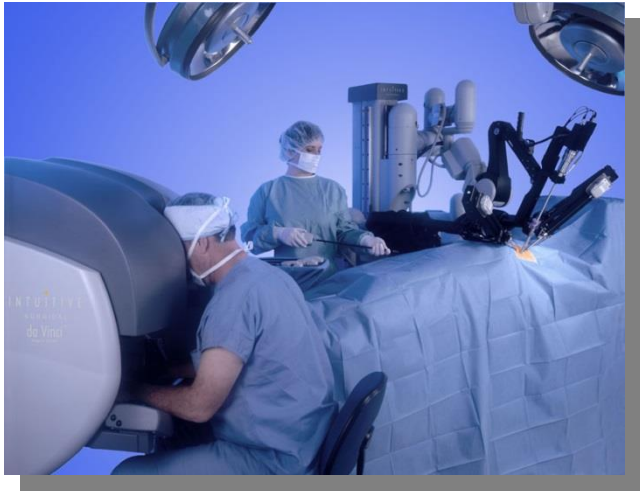


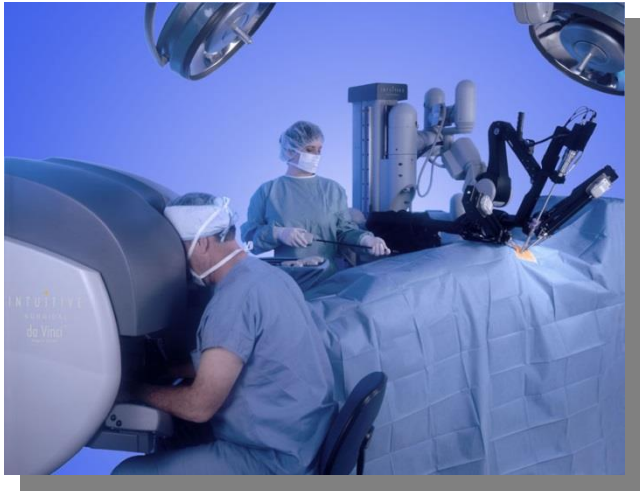
NASA

AIRLINE PILOT TRAINING

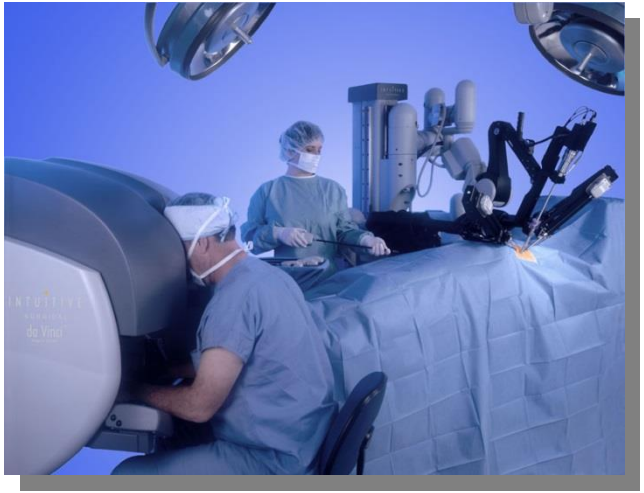
AIRLINE PILOT TRAINING

MILITARY TRAINING





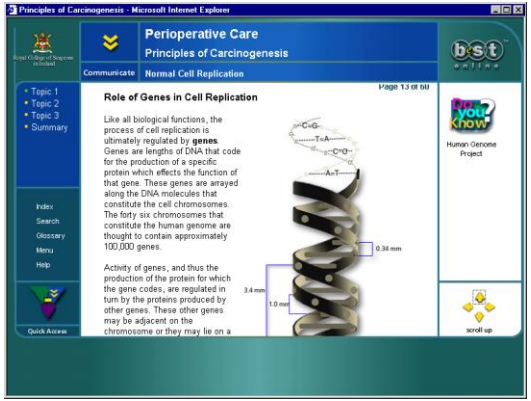

WASTE

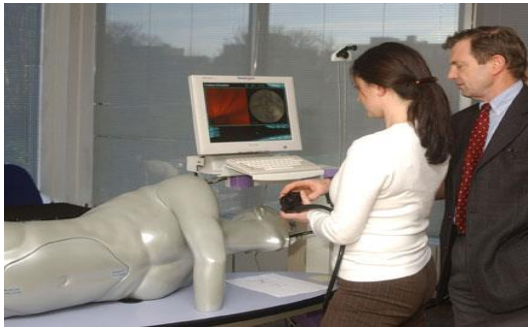


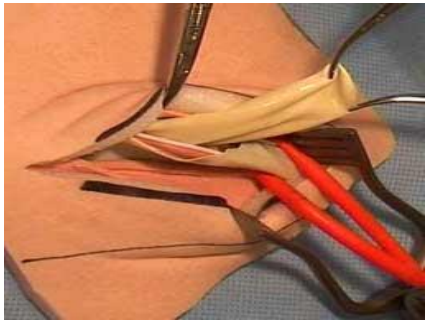

WASTE

HOW SHOULD WE TRAIN THE SURGEONS OF TOMORROW?

Remodelling for the future







NATIONAL SURGICAL &CLINICAL SKILLS TRAINING CENTRE

RCSI

SURGICAL SIMULATION

Simulation in Surgical Training is a complete waste of time and money

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UNLESS

SURGICAL SIMULATION

Simulation in Surgical Training is a complete waste of time and money

UNLESS

It is embedded in the Curriculum for Surgical Training

NATIONAL SURGICAL AND CLINICAL SKILLS TRAINING CENTRE

Physical facilities

Curriculum

Training models

Faculty

IT'S NOT ABOUT PLAYING WITH THE TOYS!

OPERATIVE SURGICAL SKILLS COURSE

6 full days each year

1. Before
2. During
3. After

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2. During
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Book classes
Class content
Learn steps
Practice skills
Learning outcomes

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SMARTPHONE APP FOR SURGICAL TRAINEES

MODULE LEARNING OBJECTIVES

At the end of this module, you should KNOW certain things and you should BE ABLE TO DO certain things.

These are your Learning Objectives for this module

MODULE LEARNING OBJECTIVES

You should **KNOW:**

A. Surgical Anatomy

Surface markings of inguinal canal
Boundaries/walls of inguinal canal
Nerves of the inguinal canal
Borders /surface markings of superficial/deep inguinal rings
Contents and layers of spermatic cord
Borders/significance of Hasselbach's triangle

B. Operative Surgery

Indications/contraindications for inguinal hernia repair
Types of open/laparoscopic repair
Local/regional anaesthesia techniques
Differentiating direct/indirect inguinal hernia at surgery
Types of mesh
Complications of inguinal hernia repair

MODULE LEARNING OBJECTIVES

You should **Be Able To Do:**

- Choose and make correct incision for inguinal hernia repair
- Open anterior wall of inguinal canal
- Identify and preserve the nerves of the canal
- Mobilise the spermatic cord
- Identify and dissect indirect hernia sac
- Transfix and excise sac
- Repair the deep inguinal ring
- Prepare artificial mesh to appropriate size and shape
- Place and fix the mesh
- Close inguinal canal and close wound

OPERATIVE SURGICAL SKILLS COURSE

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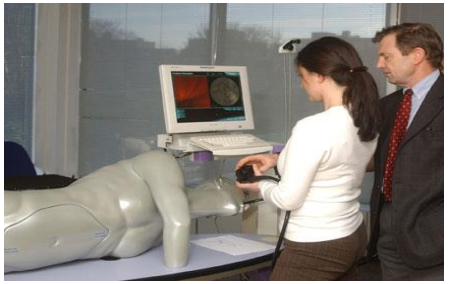
2. During
3. After

SURGICAL BOOTCAMP

Intensive 5 day introductory course in surgical skills/management

Technical Skills:

- Knot tying
- Suturing
- Wound closure
- Anastomosis
- Surgical technique/theatre skills
- Drains/catheters
- Minor surgical procedures
- Laparoscopy/Endoscopy



SURGICAL BOOTCAMP

Non technical skills:

Critical care
Emergency care
Clinical decision making
Common surgical problems
Risk management
Caring for yourself

RCSI

SURGICAL ANATOMY

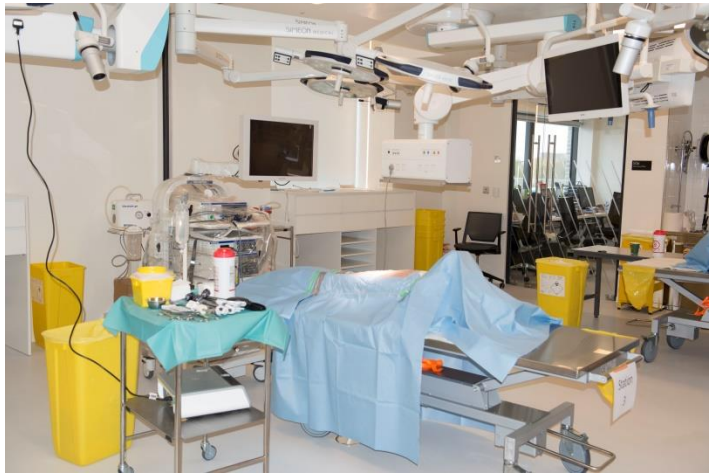
Demonstration

Practice

Proximate feedback

Coaching

Assessment




Station
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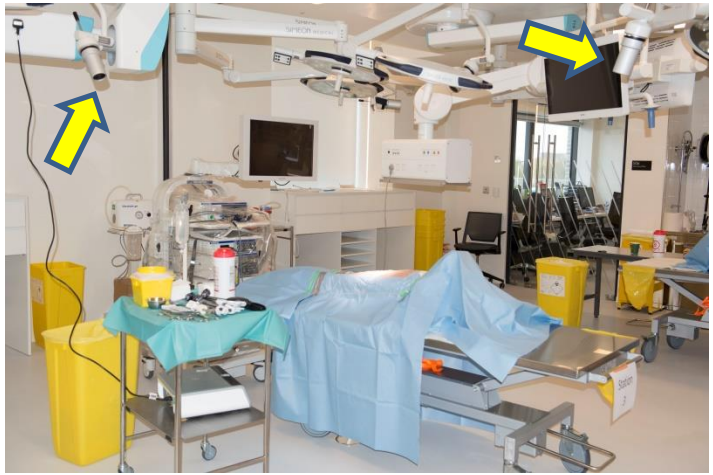


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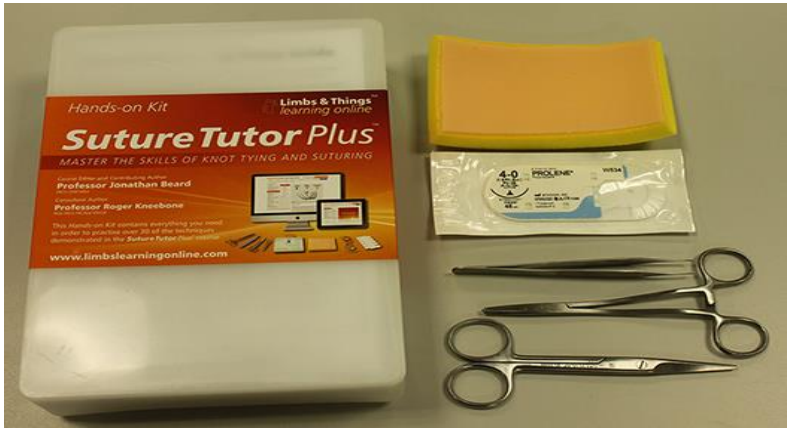
OPERATIVE SURGICAL SKILLS COURSE

6 full days each year

1. Before
2. During
3. After

SIMULATION TAKE HOME KIT



SERIOUS GAMES IN SURGICAL SKILLS TRAINING

UNDERGROUND

HOME GAME MEDIA SURGICAL TRAINING CONTROLLER BENEFITS FAQ CONTACT

AVAILABLE NOW FOR NINTENDO Wii U BUY NOW

UNDERGROUND

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spired by laparoscopy

www.undergroundthegame.com/#game

UNDERGROUND

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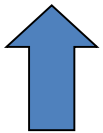
SURGICAL TECHNICAL SKILLS

Expert performance

SURGICAL TECHNICAL SKILLS

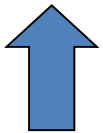
Expert performance



Deliberate practice

SURGICAL TECHNICAL SKILLS

Expert performance



Deliberate practice

PURPOSEFUL, GOAL-ORIENTED

EXPERT PERFORMANCE

- Define performance standards
- Practice
- Feedback: proximate/structured
- Encourage to achieve higher standards (coaching)
- Practice
- Feedback
- Still more practice!!

Our BIG challenge!

I have done this once

I don't need to keep doing it

I am now an EXPERT

SURGICAL SKILLS TRAINING

Advantages of skills training outside O.R:

- Decreased risk to patients
- Availability
- Exposure to less common procedures
- Standardisation of training and assessment
- More efficient use of OR time

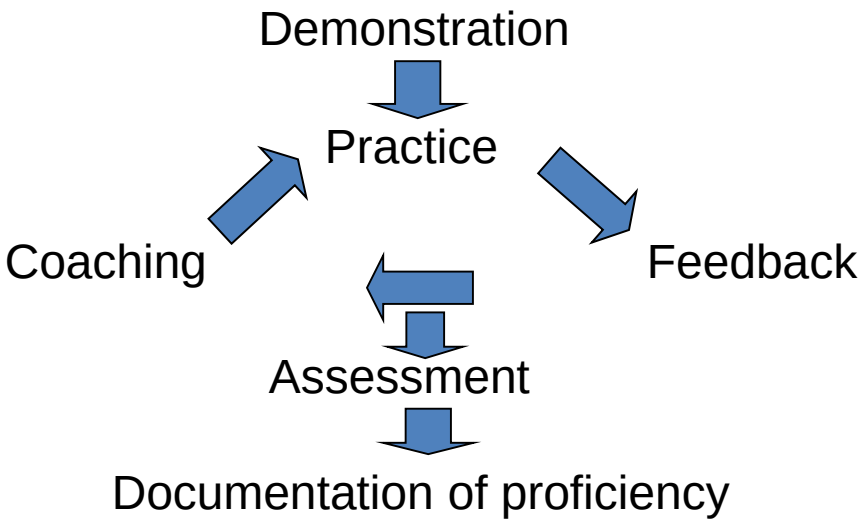
SURGICAL SKILLS TRAINING

The way forward: STANDARDISATION

- Defined syllabus
- Pre-course work
- Practice in safe environment
  - simulation
- Feedback and coaching
- Post-course support
- Assessment and certification

PATHWAY TO COMPETENCE IN OPERATIVE SURGERY

A. Surgical skills laboratory: *Acquire* skills



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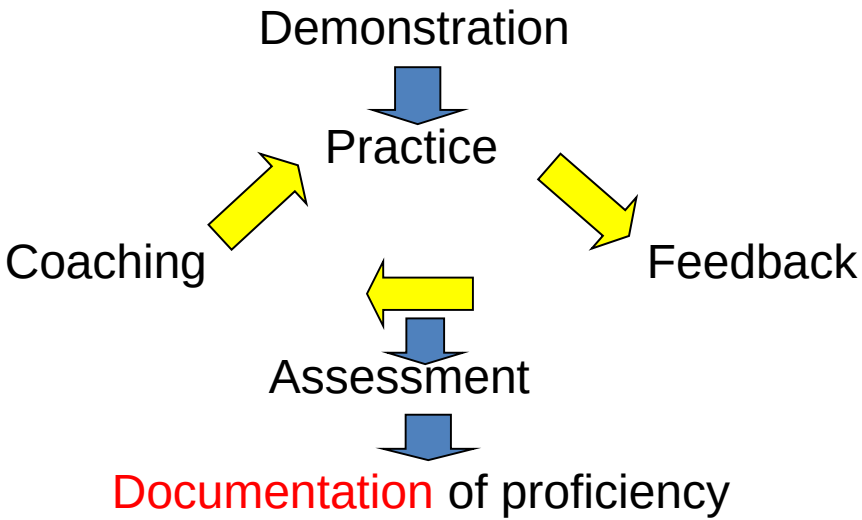


PATHWAY TO COMPETENCE IN OPERATIVE SURGERY

B. Workplace: *Develop* skills

SURGICAL TRAINING

From NOVICE to EXPERT

Dreyfus model:

Novice

Advanced beginner

Competent

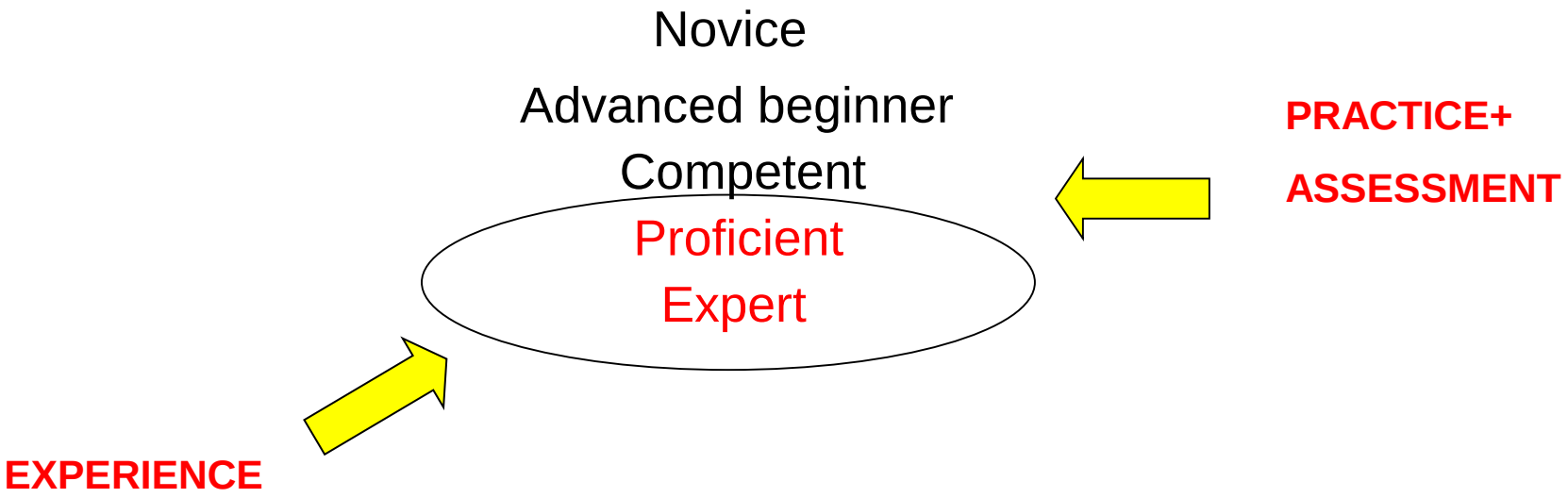
Proficient

Expert

SURGICAL TRAINING

From NOVICE to EXPERT

Dreyfus model:



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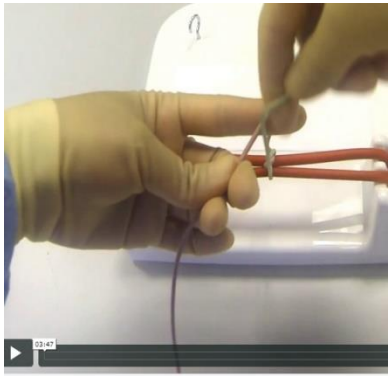
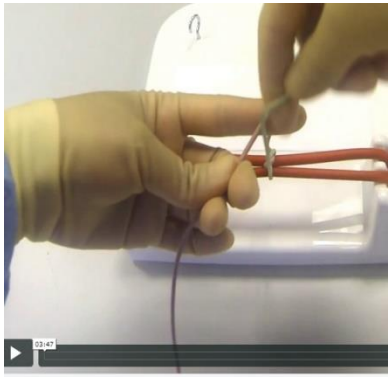


One Handed Knot Tying -Basic Surg
Video to follow - Slow Motion Loop



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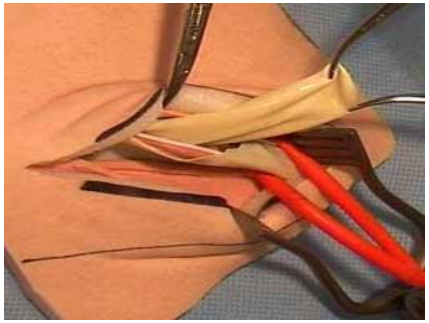

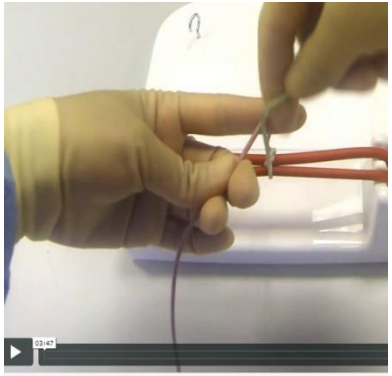
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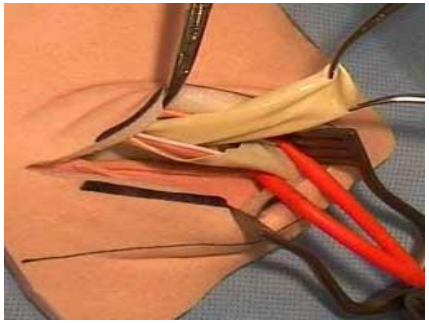

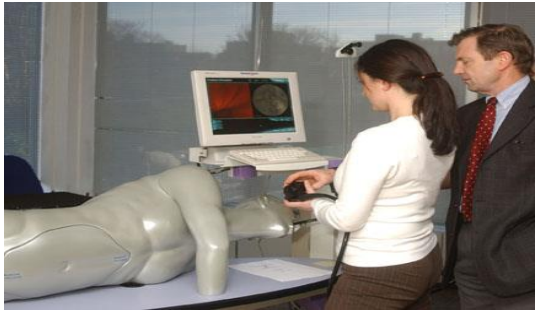

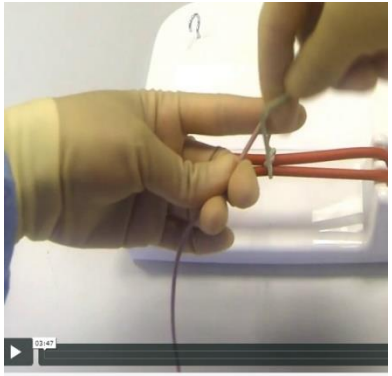

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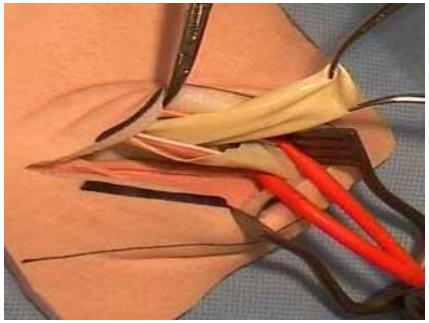

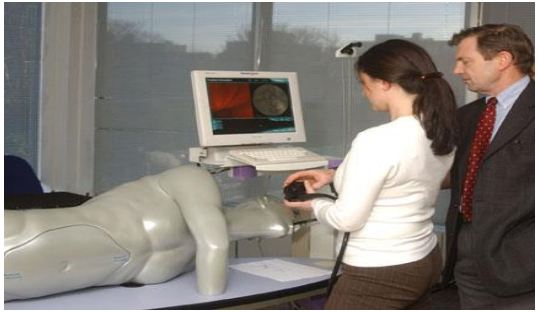

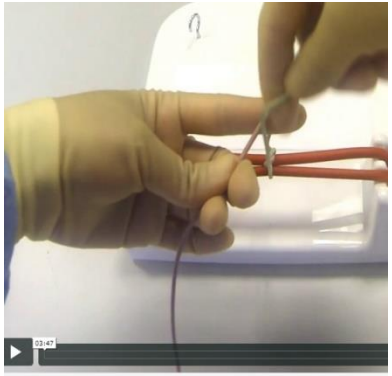

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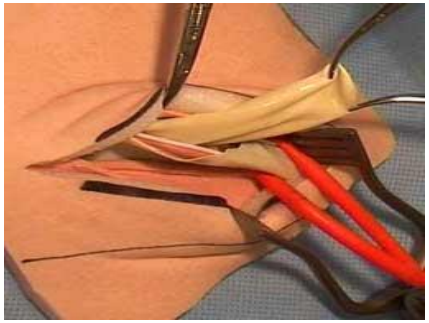

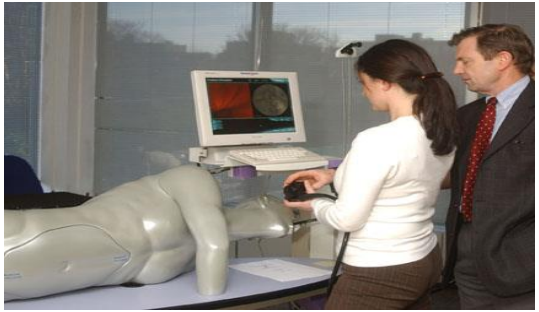

NATIONAL SURGICAL AND CLINICAL SKILLS TRAINING CENTRE

Physical facilities

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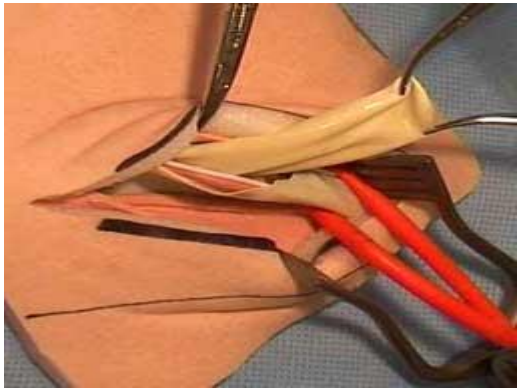
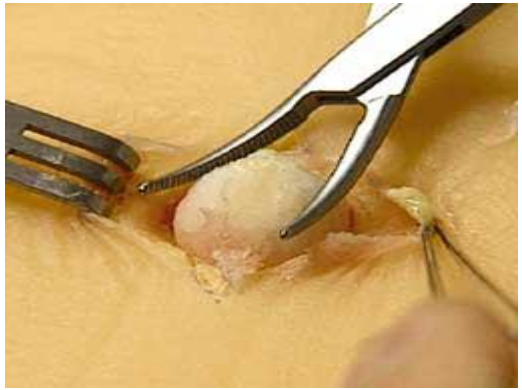
ANNUAL OBJECTIVE SKILLS ASSESSMENT



Inguinal hernia repair

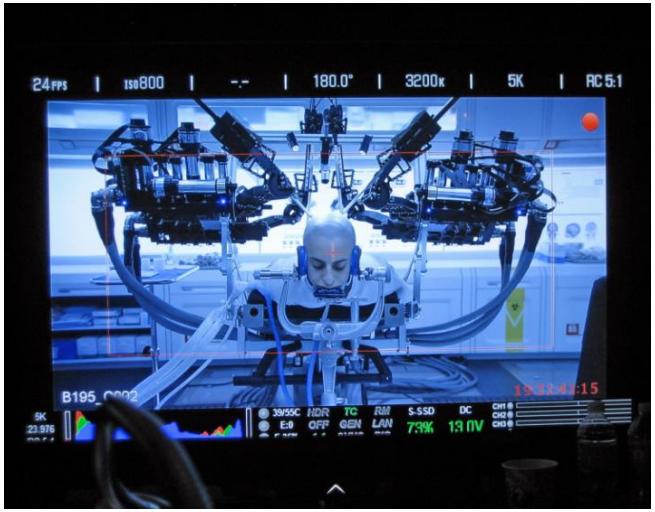
S-F junction ligation

Resection of IGTN



Excision of sebaceous cyst

Bowel anastomosis



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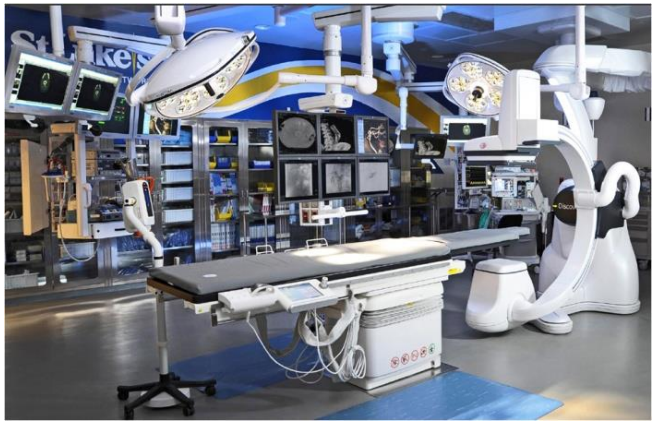
THE SURGICAL ENVIRONMENT



HUMAN FACTORS IN PATIENT SAFETY

Components

- Personality and behaviour
- Human performance and error
- Communication
- Negotiation and conflict resolution
- Teamwork and leadership
- Decision making and judgement
- Human overload

HUMAN FACTORS IN PATIENT SAFETY

Essential components

Full team

Realistic simulations

- Briefing
- Practical exercises
- Debriefing

Regular reinforcement

Assessment

The team that WORKS together should TRAIN together!


Oculus
Development Kit


SAMSUNG


SAMSUNG Gear VR
S6
S6 edge
S6 edge+
Note5
Compatible with more smartphones
Better wearing experience
22% lighter than previous version
Enhanced touchpad
Improved ergonomic design
Enhanced content with hundreds
of new options
oculus


Gear VR

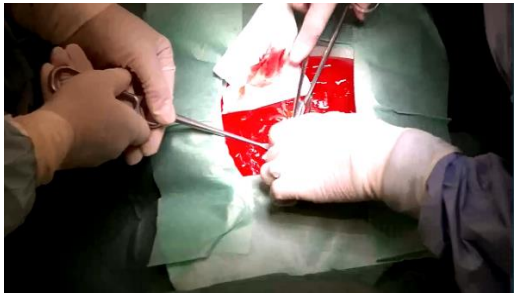
AUGMENTED REALITY

RCSI

RCSI

AUGMENTED REALITY

HUMAN FACTORS ASSESSMENTS



RCSI

WARD ROUNDS

OUTPATIENT CLINICS

OR / INTENSIVE CARE

EMERGENCY DEPARTMENT

RCSI

TRAINING WITH SIMULATION

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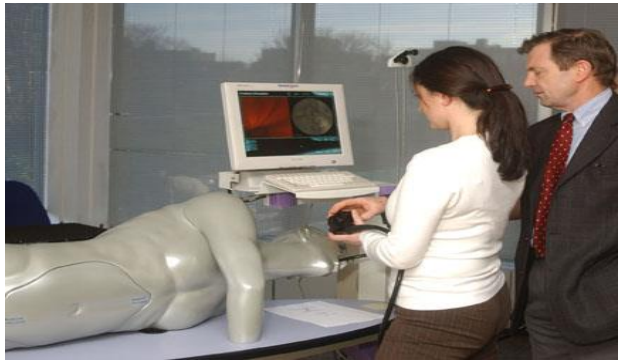

RCSI

Competence by DESIGN

rather than

Competence by TIME

CURRICULUM

DELIBERATE PRACTICE/ SIMULATION

TECHNICAL/ NON-TECHNICAL BLEND

ASSESSMENT

PROFESSIONAL TRAINERS