

Institute of Surgical Research „A” Module - Surgical Techniques

**A1. MODULE – Asepsis and Antisepsis
Scrubbing, gowning;
Behaviour in the surgical theatre;**

A2. MODULE – Surgical Deontology - Instruments

A3. MODULE – Operations

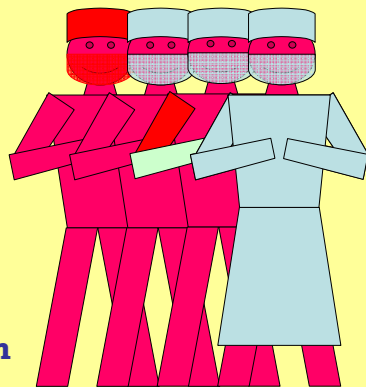
A4. MODULE – Bleeding

A5. MODULE – Wounds

A6. MODULE – Practical exam

Asepsis and the surgeon

- Dressing
- Cap, mask
- Scrubbing
- Gowning, gloving
- Surgical theatre: organization



Scrubbing and disinfection

I. Mechanical cleansing (3 min)

1. Cut nails and clean subungual areas
2. Wash hands with soap (hygienic wash) **rinse**
3. Clean nails with brush **rinse**
It is forbidden to brush other parts of the hand!
4. Wash hands and forearms with soap (scrubbing)
and **rinse**

II. Chemical disinfection (5 x 1 min)

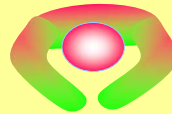
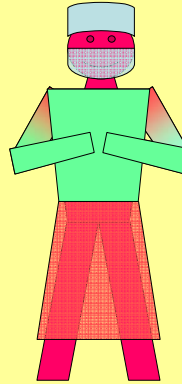
Scrubbing and disinfection



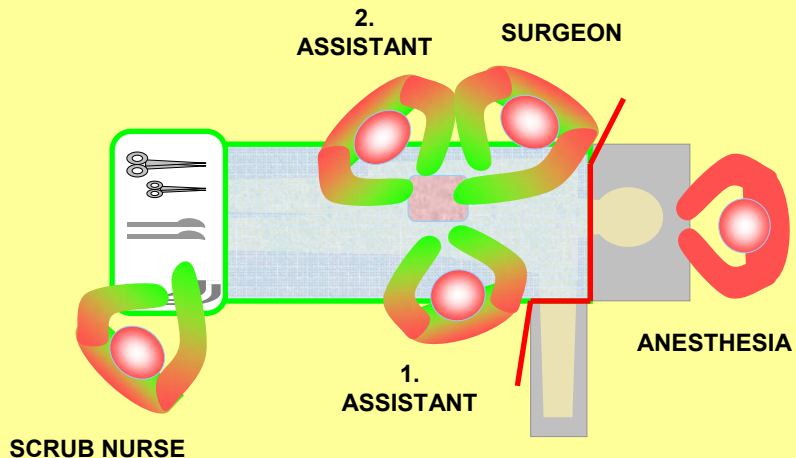
Effective „sterile” area

Certain parts of the gown can not be considered sterile (!)

- a. the back and the axillaries
- b. lateral from the axillaries
- c. under the waistline
- d. the sleeves 10 cm distance from the shoulders over the elbow.



The position of the surgical team



1. Evaluation of scrubbing, gowning and gloving

Task	Mistakes	Names		
Putting on cap, mask, and shoe covers	Missing to put on any of them Incorrect wear (uncovered hair, nose).			
Preparation for mechanical scrub	Wearing ring, wrist watch, bracelet, nail polish, or the long sleeve(s) of the cloth covers the elbow and the forearm.			
Hand and forearm wash with soap	Missing or false: the extent, intensity or length of time of the scrub is not appropriate, wrong order			
Rinsing	Inappropriate, the hand is held lower than the elbows, inappropriate rinsing; residual soap lather;			
Water tap closing	The tap is turned off by hand or forearm instead of the elbow (touching a non-sterile surface with washed hand).			
Mechanical scrub	Breaching the rules of asepsis, e.g. touching non-sterile things			
Disinfection	Missing, fewer than 5 dosages; the time is decreased or not controlled; Rinsing the disinfectant; Keeping hands irregularly			
Donning sterile gown	Breaching the rules of putting on a gown (hanging arms, contamination)			
Assisted donning of sterile gloves	Contamination of gloves (naked finger contact with sterile surface)			

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A1. MODULE – Asepsis and antisepsis

A2. MODULE – Surgical Deontology

Basic surgical instruments - Suture Tutor program

Textiles in the operating room

**Asepsis and the patient: preparing the operative site
(skin cleansing and draping)**

Tying surgical knots - Suture Tutor program

A3. MODULE – Operations

A4. MODULE – Operations - Bleeding

A5. MODULE – Wounds

A6. MODULE – Practical exam

Tying Surgical Knots

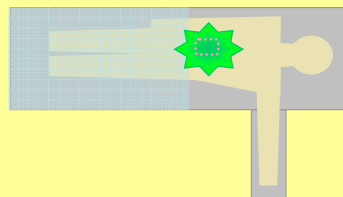
Methods of tying two-hand knots:

See video demonstrations on your computer

- two-handed square knot
- surgeon's knot
- Viennese knot
- instrument tie

Methods of tying one-hand knot and instrument tie will be taught by **the Suture Tutor program.**

Preparing the operative site 1. (cleansing)



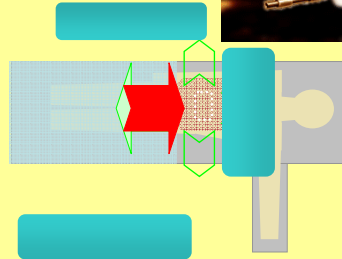
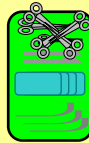
1. Cleansing with alcohol 1.
2. Cleansing with alcohol 2.
3. Disinfection with betadine
4. Repeat disinfection with betadine on less area



IT IS FORBIDDEN:
to return to a cleansed area
with the same sponge!

Preparing the operative site 2. (draping)

Drapes can be moved away from the sterile field
towards the sterile field....NOOOOOO!



1. Lower drape
2. Upper drape
3. Side drapes
4. Fixing the drapes with towel clips
5. Moving the Mayo stand in place

Preparing the operative site - cleansing and draping



Institute of Surgical Research „A” Module - Surgical Techniques

A1. MODULE – Asepsis and antisepsis

A2. MODULE – Surgical Deontology

A3. MODULE – Operations

- Special surgical knotting: knotting under tension, knotting in cavities; tissue approximation;

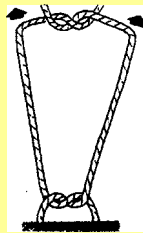
- Suture types - *Suture Tutor program*

A4. MODULE – Operations - Bleeding

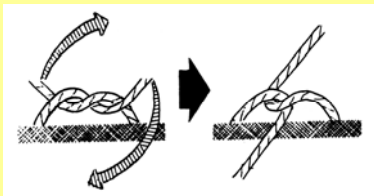
A5. MODULE – Wounds

A6. MODULE – Practical exam

Practice: tying under tension



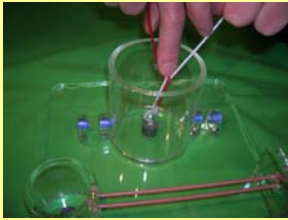
Technique No.1 („After the first half-hitch has been tightened, a little tension is kept on the threads while the second half hitch is formed and tightened”)



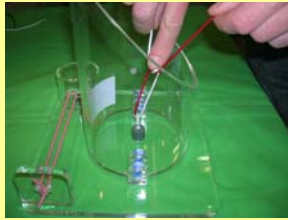
Technique No.2 (After the first half hitch has been tightened, sharply rotate the lines to hold the first half hitch, while the second hitch is formed”)

Practice: knotting in cavities

1. Square, surgical and Viennese-style knots
2. Knotting with instruments



3. Knotting in the depths of a cavity



4. Knotting in the abdomen



5. Knotting in the lesser pelvis

The half hitch is formed in a large loop outside the mouth of the cavity rather than to form a half-hitch in the depths of the cavity....

2. Practice of suturing techniques *Suture Tutor program*

Interrupted

- Simple suture
- Vertical mattress suture

Continuous

- Simple suture
- Subcuticular suture

Evaluation of suturing:

mounting a needle holder, closing an approx. 5 cm long incision with vertical mattress (Donati) sutures, knotting with instrument

Mistakes	Names		
Incorrect mounting of the needle holder with needle and thread			
Breaking the needle/ straightening the needle			
Holding and using the needle holder and/or the forceps incorrectly			
The distances among the stitches are not identical (min. 4, max. 6 stitches)			
The depth of the stitches and/or their distances from the incision are not appropriate or not identical			
The stitches are not perpendicular to the incision			
The knots are not on the same side.			
Mistakes in the knotting technique			
The sutures are too tight or loose			

Institute of Surgical Research „A” Module - Surgical Techniques

- A1. MODULE – The asepsis and the surgeon**
- A2. MODULE – Surgical instrumentation**
- A3. MODULE – Surgical knotting; suture types**

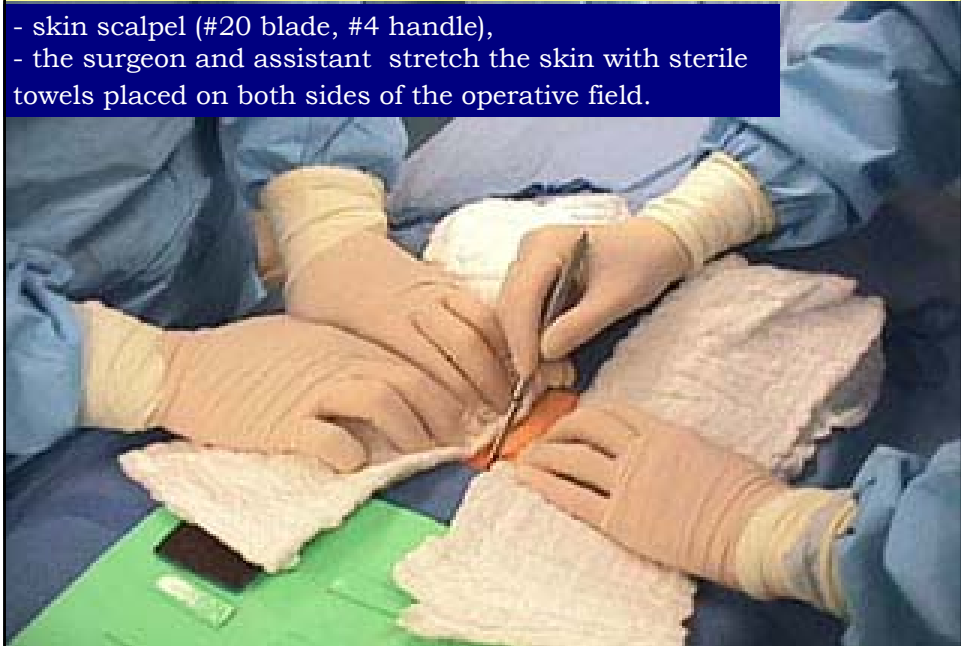
A4. MODULE: Operations, bleedings

- **skin incision,**
- **handling surgical bleedings,**
- **drainage,**
- **wound closure with continuous and interrupted sutures, clips,**

- A5. MODULE - Wounds**
- A6. MODULE – Practical exam**

Skin incision

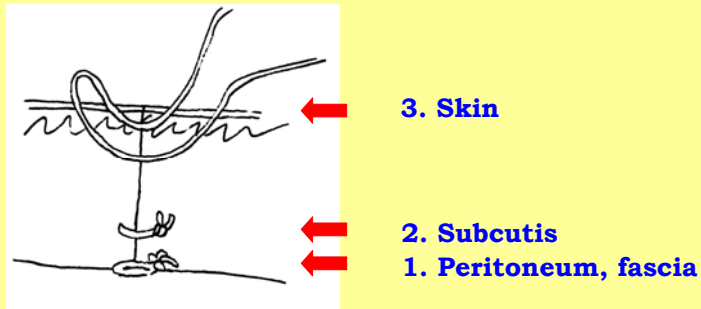
- skin scalpel (#20 blade, #4 handle),
- the surgeon and assistant stretch the skin with sterile towels placed on both sides of the operative field.



Handling surgical bleeding (video)



Closing wounds in separate layers



1. Deeper tissues (muscle, fascia)	Absorbable threads Simple continuous suture
2. Subcutis	Absorbable threads Simple interrupted suture
3. Skin	Non-absorbable threads Vertical mattress suture

Practice

Working in operating teams (surgeon, assistant and nurse):

1. Scrubbing, disinfection, gowning;
2. Skin incision (on prepared, cleaned and draped natural tissue);
3. Handling surgical bleedings with ligatures;
4. Closing the wound in separate layers (the assistant ties the knots):
5. Continuous suture (peritoneum) with linen thread, knotting with hand;
6. Drainage - insertion of a tube drain;
7. Interrupted stitches (subcutis); linen thread, knotting with hand;
8. Wound closure with Michel clips;
9. Donati-type stitches (skin) with monofilament thread, knotting with hand.

Institute of Surgical Research „A” Module - Surgical Techniques

A1. MODULE - Asepsis and the surgeon

A2. MODULE - Surgical instrumentation

A3. MODULE - Operations

A4. MODULE - Bleedings

**A5. MODULE - sterile bandage change,
suture removal,
open wound management,
bandaging**

A6. MODULE - Practical exam

Sterile gloving without assistance



OPERATING THEATRE: WOUND MANAGEMENT I.

1. Surgical wounds – sterile bandage replacement, removal of sutures

STERILE EQUIPMENT SURGEON

2. Sterile gloving
3. Disinfection (Betadine solution)
4. Removal of sutures
5. Sterile covering (sterile gauze)

NON-STERILE ASSISTANT

1. Removal of the original bandage
(pouring fluid on the sponge)
6. Fixing

OPERATING THEATRE: WOUND MANAGEMENT II.

2. Spoiled wounds – open wound management

STERILE EQUIPMENT SURGEON

2. Sterile gloving
3. Wound cleansing (H_2O_2)
4. Rinsing with saline
5. Disinfection (Betadine solution)
6. Sterile covering (sterile gauze)

NON-STERILE ASSISTANT

1. Removal of the original bandage
(pouring fluid on the wound)
(pouring fluid on the wound)
(pouring fluid on the sponge)
7. Cover, fixing

TYPES OF BANDAGES

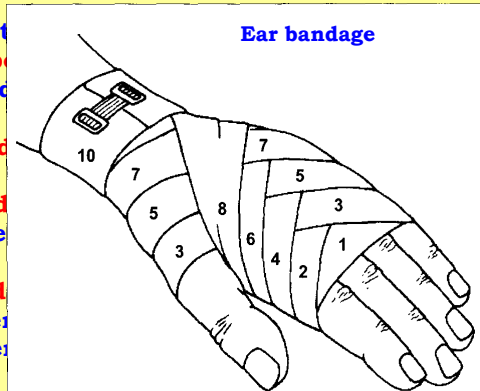
Depending on the

- adherent/tape
approximate ec

- covering band

- pressing band
bleedings unde

- wedging band
arterial and ven
relieved in eve



to

secretion)

ary and venous

capillary
ent. Should be

- **compressing bandages:** (to prevent postoperative bleeding on the limbs, and for the prophylaxis of thrombosis and for the reduction of chronic lymph-edema. *Always placed from distal to proximal.*

- **fixing/retention bandages:** (to immobilize the injured body part or to fix the reposition).

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A6. MODULE - PRACTICAL EXAM

The exam consists of 3 **exam tasks** which should be performed at 3 different work stations.

The three exam tasks will be marked separately, the result of the practical exam will be the average of the three marks.

The final mark of the course will be the average of the mark of the written theoretical exam and that of the practical exam.

PRACTICAL EXAM

Exam tasks:

- 1. Scrubbing, gowning and gloving:** 5 students (max. 20 min); outer operating room
- 2. Tying two-hand surgical knots:** knotting should be done
 - a. under tension
 - b. in a cavitythe technique is optional (reef, surgeon's or Viennese knot) (max. 5 min); skills laboratory;
- 3. Suturing:** mounting a needle holder, closing an approx. 5 cm long incision with vertical mattress (Donati) sutures, knotting with instrument (max. 15 min); inner operating room;

Statistics of Basic Surgical Techniques Course

	Hungarian	Foreign students
Number of applicants to the course:	179	108
Number of graduates of the course:	175	108
Average grade at practical exam:	4.86	4.61

Results of the opinion polls regarding the practicals:

„Numeric opinion about the practices”	4.74	4.72
„Distinctness and usefulness of presentations introducing the practices”	4.56	4.52
„Utilization of available time”	4.17	4.06
„Organization of the practices”	4.48	4.55
„Possibility of active participation”	4.71	4.57
„Readiness of teachers to help”	4.71	4.75
„Usefulness of teaching tools, models, phantoms, computer simulator program”	4.36	4.42
„The value of the subject in medical education”	4.69	4.76

