

## BASIC SURGICAL SKILLS

**Compulsory subject** for second-year students of the Faculty of Medicine

**Teacher in charge of the course:** Prof. habil. Mihály Boros, M.D., Ph.D., D.Sc., Head of Department

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**Course code:** AOK-KUA111 (lecture), AOK-KUA112 (practice)

**Course credit:** 3

**Course hours per week:** 1-hour lectures + 2-hour practices

**Prerequisite of registration:** Completion of the first three semesters at the Faculty of Medicine. The subject should be taken up and accomplished in 4<sup>th</sup> semester.

**The aim of the subject:** To achieve the general level of theoretical surgical knowledge and practical skills necessary for the implementation of invasive techniques that are essential for a general physician.

**Acquired competence:** By applying principles of asepsis, the student is autonomously able to perform bed-side (hospital) hand disinfection, surgical attire, gowning, gloving, surgical knotting and basic surgical stitches as well as wound management under simulated sterile operating conditions and to autonomously carry out these procedures under sterile clinical conditions (i.e. in the operating theatre) under supervision.

**Method:** lectures (7 x 120 min) + workshops (5 x 60 min) + practices (9 x 120 min) according to the individual schedule of the groups; textbook.

**Topics of the lectures (7 x 120 min):**

1. **Asepsis and antisepsis.** Historical background. Surgical infections, sources of infections. Types, classification, risks and prevention of wound contaminations. Sterilization, disinfection. Preparation of the patient before operation: scrub preparation and isolation of the surgical site. Scrubbing, disinfection, gowning and gloving of the operating team. Personnel attire and movement. Basic rules of asepsis in the operating room. Postoperative wound management. Surgical antisepsis. Design and equipments of the operating room, basic technical background. Operating room personnel and their duties. Positioning of the patient on the operating table. Positioning.
2. **Surgical instruments.** Basic surgical instruments, special surgical tools and technologies, suture materials. Wound closure (sutures, clips, adhesive strips). Imperfections of suturing techniques. Removal of sutures. Drainage.
3. **The operation.** Basic surgical interventions. Indications for an operation, informed consent, operative risk, the surgeon's responsibility. Preoperative investigations. Perioperative fluid balance, fluid requirements and fluid therapy. Preoperative preparation of the patient. Local anesthesia (drugs, types of local anesthesia, complications).
4. **Wounds.** Types and classification of accidental wounds. Wound healing, scar formation. Surgical wounds. Wound closure and its complications. Management of accidental wounds. Dressings, types of bandages. Innovations in wound treatment.
5. **Bleeding.** Types and classification of hemorrhage. Signs and consequences of blood loss. Bleeding in surgery (pre-, intra- and postoperative bleeding). Factors influencing operative blood loss. Surgical hemostasis (mechanical, thermal, chemical-biological methods). Blood replacement in surgery, autotransfusion.
6. **Complications.** Definition and classification of complications. Complications related to surgery and anaesthesia. Complications of wound healing. Haemorrhagic complications. Pathophysiology, signs and treatment of hemorrhagic shock

7. **Basics of minimally invasive surgical interventions.** Historical background. Components of the laparoscopic tower, laparoscopic instruments. Basic procedures, pathophysiological background. Complications.

**Schedule of the workshops (5 x 60 min):**

1. Scrubbing, gowning and gloving
2. Suturing and knotting
3. Scrub preparation and draping of the surgical site, management of bleedings, advanced suturing
4. Wound management. Minimally invasive surgery
5. Administrative issues. Preparation for the practical exam

**Topics of the practices (9 x 120 min):**

- 1-2. **General information.** Scrubbing, gowning and gloving. Practical rules of asepsis in the operating room. Behavior and movement in the operating room.
- 3-4. **Basic surgical instruments, suture materials, textiles.** Scrubbing, gowning and gloving. Scrub preparation and draping of the surgical site. Making incisions (on skin pad), wound closure with sutures or clips. Practicing instrument knots by means of the Suture Tutor program.
- 5-6. **Tying surgical knots.** Tying surgical knots (hand and instrument knots). Knotting under tension and in cavities.
- 7-8. **Skin incision,** handling bleeding, closing wounds in separate layers with sutures or with wound clips. Draining of wounds. Knotting with an instruments using the Suture Tutor program.
- 9-10. **Management of accidental wounds.** Dressing, types of dressing. Changing dressing under aseptic conditions. Removal of sutures.
- 11-12. **Basics of minimally invasive surgery.** Components of the laparoscopic tower, laparoscopic instruments. Eupractic movements, handling of laparoscopic instruments, knotting.
- 13-14. **Suturing of tissue** under sterile circumstances.
- 15-18. **Practical exam.** (1) Surgical scrubbing and gowning (2) Knotting under tension and in a deep cavity (3) Surgical suture (mounting of a needle holder, closure of a 5 cm-long incision with Donati-stitches, instrumental knotting).

**Criteria for completing the course:**

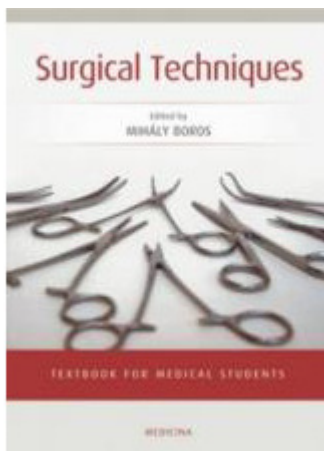
- Attendance of lectures is recommended, attendance of practices: a minimum of 75% is compulsory. Making-up of missed practices is possible only if schedule makes it possible and only after obtaining written permission from the course organizers.
- Acknowledgement of absences from practices and exams are based on medical certificate.
- Requirements for acknowledgement of practices is visiting minimum of 75% of practices.
- Practical exam is on week 14, improvement possibility of practical exam marks is on week 15.
- The prerequisite for the theoretical examination is the completion of a successful practical exam, which can be achieved by successful completion of all three practical exam tasks until the end of the semester.

**Evaluation:**

- We evaluate the performance of the students on all practices and give a continuous feedback of their progress. The practical exam (held in the last two weeks) provides feedback from the acquired practical skills (content and evaluation criteria are shared in advance).

- Written theoretical test (5-grade) + practical exam (5-grade). The five-grade end semester examination mark is based on the average of the mark of the end semester written theoretical test exam and the mark of the practical exam.

**Compulsory textbooks:**



**Surgical Techniques**

Textbook for medical students

**Mihály Boros** (ed.)

Medicina, Budapest, 2009.



**Practical Skills Syllabus**

**Mihály Boros** (ed.)

Innovariant Kft., Szeged, 2008.

**Recommended literature:** Tutorial videos.