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# Do robotic and conventional surgery need different training?

**Submission date**
25/09/2025

**Recruitment status**
No longer recruiting

**Registration date**
26/09/2025

**Overall study status**
Completed

**Last Edited**
26/09/2025

**Condition category**
Surgery

[_] Prospectively registered
[_] Protocol
[_] Statistical analysis plan
[_] Results
[_] Individual participant data
[X] Record updated in last year

**Plain English summary of protocol**
Background and study aims
The rise in robotic surgical procedures underscores the need for effective training in minimally invasive surgery, particularly the interactions between robotic and conventional techniques. The aim of the study was to examine whether conventional and robotic laparoscopy require different neuropsychological skills and to evaluate the role of individual experience and expertise.

Who can participate?
Residents and experts from general surgery, urology and gynecology took part in the study as well as fifth-year medical students

What does the study involve?
Participants underwent neuropsychological testing, followed by surgical training in both conventional and robot-assisted laparoscopy, performing identical tasks six times in a random order.

What are the possible benefits and risks of participating?
The participants benefit from the structured training programme as well als the information they gather about themselves from the extensive testing. Since the study is an observational educational study on simulator basis, there were no risks for the participants.

Where is the study run from?
University Medical Center Schleswig-Holstein (Germany)

When is the study starting and how long is it expected to run for?
January 2021 to June 2022

Who is funding the study?
The study is funded by the Clinic for Gynaecology and Obstetrics, University Medical Center Schleswig-Holstein, Kiel, Germany. The provision of training tools and staff was supported by the faculty through an innovative teaching fund.

Who is the main contact?
Prof. Ibrahim Alkatout, Ibrahim.Alkatout@uksh.de

# Contact information

### Type(s)
Public, Scientific, Principal investigator

### Contact name
Prof Ibrahim Alkatout

### ORCID ID
https://orcid.org/0000-0002-7194-6034

### Contact details
Clinic for Gynecology and Obstetrics
University Medical Center Schleswig-Holstein
Kiel, Germany
Arnold-Heller-Str. 3
Kiel
Germany
24105
+49 (0)43150021450
Ibrahim.Alkatout@uksh.de

# Additional identifiers

### Clinical Trials Information System (CTIS)
Nil known

### ClinicalTrials.gov (NCT)
Nil known

### Protocol serial number
CANTAB 02

# Study information

### Scientific Title
The need for adaptive laparoscopic training, depending on conventional and robotic procedures. Evidence from an experimental study.

### Study objectives
The aim of the study was to examine whether conventional and robotic laparoscopy require different neuropsychological skills and to evaluate the role of individual experience and expertise.

### Ethics approval required
Ethics approval required

### Ethics approval(s)
approved 15/03/2021, Ethics committee of the University Clinic of Kiel (Arnold-Heller-Str. 3, Haus U 27, Kiel, 24105, Germany; +49 (0)43150014191; ethikkomm@email.uni-kiel.de), ref: D448/21

### Study design
Single-center randomized cross over training trial

### Primary study design
Interventional

### Study type(s)
Other

### Health condition(s) or problem(s) studied
Personality traits, neuropsychological features and surgical skills of surgeons

### Interventions
At baseline, participants underwent neuropsychological testing, personality assessment and motivation testing. After the baseline measures, all participants underwent surgical training in both conventional and robot-assisted laparoscopy, performing identical tasks six times in a randomized cross over setting. Randomisation was achieved by a randomisation table.

### Intervention Type
Other

### Primary outcome(s)
1. Neuropsychological skills measured by Cambridge Neuropsychological Test Automated Battery at baseline
2. Personality traits measured by NEO Five Factor Inventory at baseline
3. Motivation measured by Questionnaire on Current Motivation at baseline

### Key secondary outcome(s))
Surgical training outcomes in simulated tasks, measured analogous during each task (time, mistakes) during conventional laparoscopy and digitally during robotic training

### Completion date
01/06/2022

## Eligibility

### Key inclusion criteria
1. Postgraduates (residents and experts) from general surgery, urology and gynecology
2. Fifth-year medical students

### Participant type(s)
Health professional, Learner/student

### Healthy volunteers allowed
No

**Age group**
Adult

**Lower age limit**
18 years

**Upper age limit**
99 years

**Sex**
All

**Total final enrolment**
323

**Key exclusion criteria**
No consent

**Date of first enrolment**
15/03/2021

**Date of final enrolment**
30/12/2021

# Locations

**Countries of recruitment**
Germany

**Study participating centre**
**Univeristy Hospital Schleswig-Holstein**
Clinic for Gynaecology and Obstetrics
Arnold-Heller-Str. 3
Kiel
Germany
24105

# Sponsor information

**Organisation**
University Hospital Schleswig-Holstein

**ROR**
https://ror.org/01tvm6f46

# Funder(s)

**Funder type**
Hospital/treatment centre

**Funder Name**
University Medical Center Schleswig-Holstein

# Results and Publications

**Individual participant data (IPD) sharing plan**
The anonymized data are available on request per mail to the corresponding author Prof. Ibrahim Alkatout (Ibrahim.Alkatout@uksh.de).

**IPD sharing plan summary**
Available on request