

Do robotic and conventional surgery need different training?

Submission date 25/09/2025	Recruitment status No longer recruiting	<input type="checkbox"/> Prospectively registered
		<input type="checkbox"/> Protocol
Registration date 26/09/2025	Overall study status Completed	<input type="checkbox"/> Statistical analysis plan
		<input type="checkbox"/> Results
Last Edited 26/09/2025	Condition category Surgery	<input type="checkbox"/> Individual participant data
		<input checked="" type="checkbox"/> 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 as 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

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Additional identifiers

Clinical Trials Information System (CTIS)

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