

# SurgTrain™ 4D Neurosurgical Simulator

Distribuito da:

**Accurate**  
Learn. Practice. Improve.



Training Never Stops...

# All Simulation modalities in One Simulator



Physical Reality



Mixed Reality



Virtual Reality

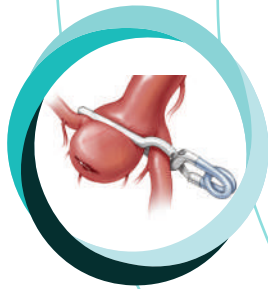


## One-stop solution for Neurosurgical training

## Supported Procedures



02



ACom



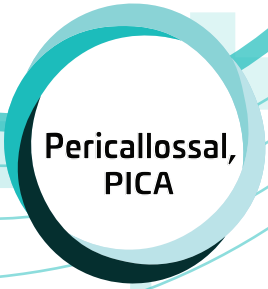
ICA



MCA



Ophthalmic



Pericallosal,  
PICA

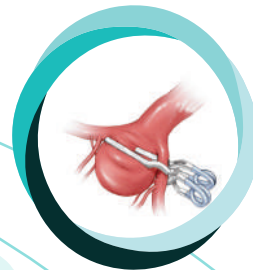
# Neurosurgical Aneurysm and Bypass Training Models



Side-Side  
Anastomosis



PCom



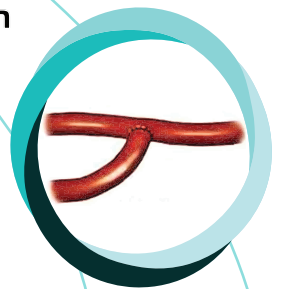
Basilar Artery  
Bifurcation



*"Head models with varied Levels of Difficulty"*



End-End  
Anastomosis



Side-End  
Anastomosis

**Learn Key-Hole Approaches**



Consumables and Disposables



## Benefits

### Realistic Training

- ❖ Real haptics and tactile feedback of pathology and tissues
- ❖ Use real surgical instruments, Implants and tools
- ❖ Patient-Specific Individual Training model
- ❖ Beginner to advanced difficulty level training options
- ❖ Task-specific training models

### True scale patient anatomy

- ❖ Models are accurately replicated from actual patients radiology images

### Pulsatile blood flow in models

- ❖ Mimics cardiophysiological aspects: validated against gold-standard vital monitors

### Image - Guided Therapy integration

- ❖ Compatible to Surgical Microscope (ICG, 5-ALA) and other imaging modalities

### Unique 150+ Patients dataset

- ❖ Standard training models
- ❖ Easy and Quickly swappable Patient models

### Import real patient Anatomy

- ❖ Receive tailored 3D-printed complete training model with Mixed-reality training preparation on the simulator

### Personalized Predictive Simulation

- ❖ Replicates complete microsurgical clinical process
- ❖ Intelligent consumable and Disposable control

### Ergonomic Platform

- ❖ Portable and can be placed anywhere with power and internet source
- ❖ Easily transportable in one case box
- ❖ Same seating positions and exact microsurgical workflow

## Customize Simulator Training Solution

### Short Term Training Program (Few days to weeks)

- ❖ Workshops

### On-site Training

- ❖ Dedicated Fellowship centers
- ❖ Pre-operative training for patient-specific cases

## Simulator Credentials

### Self-Diagnostics

### System Performance Health Data

### Simulator tested and certified for CE under EMI/ EMC and environmental safety standards

## General Service

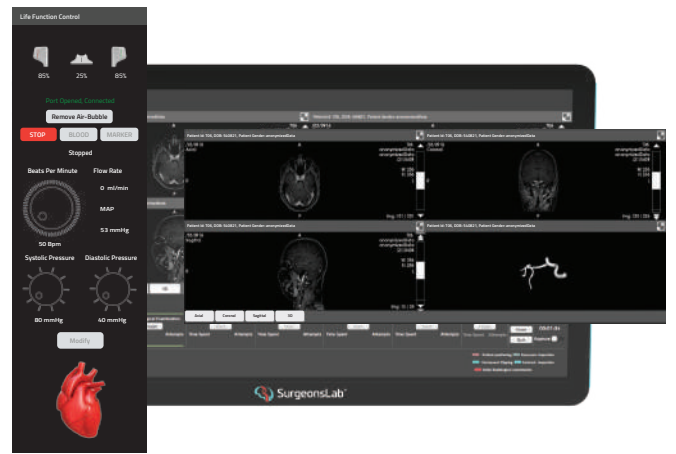
### Remote maintenance support

### 24/7 Chat Support (FAQ)

# Software Features

## Life Function Control, DICOM visualization

- ❖ Train under different scenarios with the adjustable blood pressure and heart rate
- ❖ Patient model background visualization, measurement and strategic planning with the DICOM and 3D model viewer
- ❖ Intra-operative integration with contrast markers for microscopic visualization. Compatible with standard neurosurgical microscopes and exoscopes



## Surgical Taskbar and Trainee Summary

- ❖ Personalized training and performance dashboard
- Mentor feedback**
- ❖ Get personalized feedback based on the training session from experts to evaluate and grade a trainee
  - ❖ Share performance metrics with mentors to obtain personalized feedback with microscope videos
  - ❖ Possibility to perform remote training with connected simulators and residents across the world



### Skill Training

- ❖ Gamified fundamental skill exercises and simulation programs

## Implant and Surgical tools

- ❖ Simultaneous 3D visualization of Microsurgical instruments and implants for strategic procedural pre-operative planning
- ❖ Improves the decision-making of the trainee in selecting the right microsurgical tools
- ❖ Aids in strategic planning and familiarization with intraoperative workflow



## eIFU (electronic Instructions For Use)

- ❖ Autonomous system – easy and friendly to use
- ❖ Comprehensible guide to FAQ
- ❖ Electronic Visual Guide Videos and Images for standard operating procedures



# Testimonials



**Prof. Andreas Raabe**

Chief and Director of Neurosurgery,  
Switzerland

"The simulator is very realistic. You have the same sitting position and instruments, watching well through the microscope. For cerebrovascular neurosurgeons wanting to train and become cerebrovascular neurosurgeons, this is the right simulator to train."



**Markus K.H. Wiedmann**

Senior consultant and  
Director of Residency program, Norway

"4D Simulator has excellent potential to contribute significantly to neurosurgical training, case preparation, and patient safety in the future and I am excited to follow the further development."



**Martin Hlavica**

Attending Neurosurgeon, Switzerland

"The 4D simulation allowed me to experience what it means to visualize the aneurysm properly, prepare a good approach, choose the right clip."



**David Zhang**

Resident Doctor, Switzerland

"The simulator simulates the clip slippage and also the force, it helps to understand what we are actually doing during surgery and why each step is done so. Every detail and attitude in the simulator will improve the learning curve. So, for me, it's very helpful to fully understand the surgical technical aspect much better. The simulator gives an opportunity to have much and much deeper insight into the surgery itself and at various stages in the career."



**Donika Vezirska**

Resident Doctor, Bulgaria

"This simulator is superior to the others I have tried before. The difficulty level is not the same in every model. So, you can have your training from beginner level to intermediate and expert level. The simulator will definitely be preferred for future surgeries that I will attend and assist. I will be very happy to have some training with the simulator."

“ Simulator tested, verified and validated by expert Doctors from centers globally ”

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