

### Evaluation of the anaesthetic fitness of a patient

The new biomedical device allows for the first time an objective evaluation of the individual anaesthetic fitness of patients and thus of the surgical risk. It assesses the cardio-pulmonary system as well as the dynamic load capacity of the patient. The device can be used for routine preoperative screening due to its simplicity and the relatively short time required. The anaesthesiologist's receives valid and reproducible results for anamnesis as well as individual and safe planning of anaesthesia.

#### BACKGROUND

Currently, the routine assessment of the static-anatomical anaesthetic fitness before surgery is carried out as part of the anaesthesiologist's anamnesis by assessing the subjective stress thresholds and subjective fitness perceived by the patient. Objective, physical-dynamic examinations are rarely carried out due to time and cost constraints, typically only for special high-risk patients and with large apparative efforts. An objective and simple prediction of the physiological condition in the perioperative setting is of vital importance for the choice of the anaesthesia method, its stable implementation and for patient safety.

#### TECHNOLOGY

For the first time, an electromedical device with embedded physiological sensors makes it possible to determine the dynamic-functional anaesthetic fitness. Various non-invasive biosignals, such as arterial oxygen saturation, are monitored before, during and after a voluntary ceased breathing (apnoea). To compensate for the resulting mild stress situation, the body initiates various stress-relieving dynamic regulatory actions, which mainly affect the cardiovascular and pulmonary systems and correlate with the body's individual adaptability and resilience. The diagnosis algorithm allows the anaesthesiologist to quickly interpret the results based on a simple fitness indicator.

[Click here for the video!](#)



#### ADVANTAGES

- Improvement of anaesthesia planning and increase of patient safety
- easy to perform (also by nurses)
- low time expenditure for the interpretation of the results by the anaesthesiologist
- objective and reproducible, non-invasive
- no side effects, no administration of drugs or gases
- the voluntary apnoea used is well tolerated
- patient mobility is not a prerequisite

**REFERENCE:**  
M030/2017

**APPLICATIONS:**  
preoperative medical technology, functional diagnostics, physical diagnostics, general medicine

**KEYWORDS:**  
anesthesia, anaesthetic fitness, perioperative analysis, fitness, apnoea

**DEVELOPMENT STATUS:**  
laboratory prototype, first clinical measurement

**IPR:**  
EP 3803896 granted, US and CA application filed

**OPTIONS:**  
■ R&D - Cooperation  
■ License agreement

**INVENTORS:**  
■ Eugenijus Kaniusas  
■ Klaus Ulrich Klein  
■ Stefan Kampusch  
■ Florian Thürk

#### CONTACT:

**Karin Hofmann**  
TU Wien  
Research and Transfer Support  
Vienna, Austria  
T: +43.1.58801.415241  
[karin.hofmann@tuwien.ac.at](mailto:karin.hofmann@tuwien.ac.at)  
[www.rt.tuwien.ac.at](http://www.rt.tuwien.ac.at)

