

Hellstern medical GmbH develops intelligent support system for surgeons

Pain-free operating at last, with NOAC

(Stuttgart/Wannweil) – Last year, Hellstern medical GmbH, headquartered in Wannweil in the district of Reutlingen, briefly manufactured face visors in order to help doctors and nursing staff in hospitals when supplies of personal protective equipment were completely exhausted. The company is now once again fully focused on designing the workplace of the future for surgeons. Together with her team of medical practitioners, mechanical engineers and IT specialists, Managing Director Sabrina Hellstern is developing the NOAC surgeon support system, which uses intelligent motion tracking to support surgeons in any desired position at the operating table. An interdisciplinary randomised crossover study with doctors as the test subjects has shown that NOAC signals the end of back pain for surgeons.

An operation raises many questions for the patient. Will I tolerate the anaesthetic? What complications could there be during surgery? What will the recovery process be like? When it comes to long and complex operations in particular, there is another factor that has often been neglected in the past, as Sabrina Hellstern, Managing Director and founder of Hellstern medical GmbH, explains: “In two thirds of all operations, surgeons have to adopt unnatural postures that inevitably lead to fatigue and pain, with 40 per cent regularly taking painkillers as a result.” Although surgeons work in operating theatres with state-of-the-art instruments, surrounded by cables and monitors, they themselves often end up spending hours bent over their patient. “This leads not just to fatigue and pain, but ultimately to a loss of concentration and performance, too, which can cause errors during the operation,” Hellstern points out. She knows what she’s talking about. While working as a field salesperson for a medtech manufacturer, she always asked surgeons about specific aspects of their work. What she found was that these top-level specialists equipped with high-tech devices were not infrequently standing for hours on a simple metal stool at the operating table while they operated on cases of scoliosis and cerebral aneurysms. This is an untenable situation that in the long term also leads to bottlenecks in the entire healthcare sector, as experienced

surgeons take early retirement and vacancies remain unfilled. Accident insurers and social accident insurance institutions have also realised the need to make ergonomic improvements in staff operating conditions, and for years they have been calling for aids such as height-adjustable seats and standing supports. However, so far the products on the market have not offered the desired relief, as they are too inflexible and restrictive.

Sabrina Hellstern recognised that treatment in hospitals could be significantly improved if surgeons could finally get “true support”. Working with a team of medical practitioners, mechanical engineers and IT specialists, she has developed a surgeon support system that adapts to the body’s posture and uses intelligent motion tracking to support surgeons in any desired position at the operating table. “The name NOAC stands for ‘not only a chair’. This is because our system is neither a chair nor a robot, and isn’t an exoskeleton either – it’s completely new,” she stresses. “NOAC offers excellent freedom of movement, as well as absolute rigidity for precision surgery.” She is delighted this has now also been verified scientifically. In an interdisciplinary randomised crossover study with doctors as the test subjects, Dr. Justus Marquetand, a consultant at the Centre for Neurology at the University Hospital of Tübingen, investigated muscle fatigue in specific postures with and without the support system. The study was designed to simulate the situation of a surgeon leaning over an open abdomen at the operating table. Electromyography (EMG) was used to measure the muscle activities in the trial participants. From this, Dr. Marquetand concludes that the prototype of an external surgical support system reduces muscle fatigue significantly. “NOAC means the end of back pain for surgeons,” he says, summing up his findings.

The idea hasn’t just impressed scientists. Among other things, this company from the STERN BioRegion has been honoured as one of Germany’s most innovative technology start-ups by the start-up initiative WECONOMY 2020. Sabrina Hellstern is extremely pleased with the recognition of her work: “It’s a big challenge to develop such an innovation for the healthcare sector. We have to bring together the worlds of surgeons, engineers and IT specialists.” Another aspect is the use of artificial intelligence to harness the data collected so as to generate added value for surgeons and patients. At this point, Hellstern is able to announce that “our patented system is poised to enter the market as a series product”. To do this, she says the company now needs

further investors who can be shown attractive market opportunities. “We currently anticipate a target market of over 70,000 operating theatres in the German-speaking countries and in the USA. In eight years, we want to be number one in surgeon support systems in those regions,” says a confident Hellstern. “In the future, an operating theatre’s ergonomics will play a role in the competition for specialists. A hospital with NOAC will then have a clear advantage.”

About BioRegio STERN Management GmbH:

BioRegio STERN Management GmbH promotes economic development in the life sciences industry, helping to strengthen the region as a business location by supporting innovations and start-up companies in the public interest. It is the main point of contact for company founders and entrepreneurs in the Stuttgart and Neckar-Alb regions, including the cities of Tübingen and Reutlingen.

The STERN BioRegion is one of the largest and most successful bioregions in Germany. Its unique selling points include a mix of biotech and medtech companies that is outstanding in Germany and regional clusters in the fields of automation technology and mechanical engineering.

Press contact:

BioRegio STERN Management GmbH
Dr. Klaus Eichenberg
Friedrichstrasse 10
70174 Stuttgart
+49 711-870354-0
eichenberg@bioregio-stern.de

www.twitter.com/BIORegioSTERN

Editorial department:

Zeeb Kommunikation GmbH
Anja Pätzold
Alexanderstraße 81
70182 Stuttgart
+49 711-6070719
info@zeeb.info