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BioRegio STERN

“Incisions and insights” live anatomy workshop – “Orthopaedics, surgery and rehabilitation technology”

“If you rely solely on your sat nav, you no longer know your city”

(Stuttgart/Tübingen) – The latest workshop in the “Incisions and insights” series was once again held live at the Institute of Clinical Anatomy and Cell Analysis in Tübingen. Leading specialists in different fields of medicine illustrated their medical needs on the anatomical specimen, this time focusing on “Orthopaedics, surgery and rehabilitation technology”. The workshop offered participating medtech engineers fascinating insights and again revealed specific requirements relating to the development of instruments and methods.

Despite having performed thousands of these procedures before, the medics watched closely as the surgeon below them in the operating theatre of the Institute of Clinical Anatomy and Cell Analysis in Tübingen guided the scalpel. After all, medical directors use “Incisions and insights” to be completely honest about things that do *not* go smoothly during operations. Or, as Prof. Arnulf Stenzl, Medical Director of the Department of Urology and Director of the Interuniversity Center for Medical Technologies Stuttgart-Tübingen (IZST) at the universities of Tübingen and Stuttgart, put it during his words of welcome: “When we started this experiment, we wanted to create something completely new – not the usual presentations with everyone patting each other on the back, but something that really enables us all to make progress.”

At the operating table this time round were Dr. Andreas Badke, Deputy Medical Director of BG Hospital Tübingen, Dr. Jörg Richter, Medical Director of the Clinic for Sports Orthopaedics and Arthroscopic Joint Surgery at OKM (Orthopädische Klinik Markgröningen), and Prof. Philip Kasten, Head of OCC (Orthopaedic Surgical Centre) Tübingen. In the lecture room above, Prof. Bernhard Hirt, Medical Director of the Institute of Clinical Anatomy and Cell Analysis, hosted the discussion involving Prof. Tina Histing, Medical Director of BG Hospital Tübingen, Prof. Andreas Niess, Medical Director of the University Hospital of Tübingen’s Department of Sports

Medicine, and Prof. Nikolaus Wülker, Medical Director of Orthopaedic University Hospital Tübingen.

Dr. Badke started off the workshop with the example of a spinal fracture. He wanted to stabilise the fracture by inserting screws into the body of the vertebra. He would normally take X-rays during the operation to check the position of the fragments and implants, but that is associated with significant radiation exposure for the theatre team. Workshop host Prof. Hirt was amazed at the complicated set-up for the minimally invasive imaging method. “The numerous little screws and brackets remind me of a Fischertechnik construction toy,” he said. Using this to control the imaging so as to position the implants with millimetre precision is challenging, and the tools normally have to be repeatedly readjusted during an operation. The medical professionals taking part in the corresponding panel discussion agreed that ideal solutions have not yet been found for many aspects of minimally invasive navigation. Automation and robotics can solve many of the issues, but not all of them, because nothing can totally replace experience and intuition. As one of the panel aptly commented: “If you rely solely on your sat nav, you no longer know your city.”

Next up was Dr. Richter with a routine knee operation. Keyhole surgery on a tear in the anterior cruciate ligament involves introducing water into the joint. Perfectly controlling the flow without a huge amount of effort repeatedly proves frustrating in the operating theatre. Dr. Richter also demonstrated various instruments to either suture the ligament back to the bone or graft a tendon (cruciate ligament graft). Having never been totally satisfied with the existing plug connections, he has already developed a screw that precisely meets his expectations and requirements. That sent a clear message to the participants – primarily developers from medtech companies – who were attending to obtain ideas for instruments.

Prof. Kasten was last to operate, on a shoulder. He clearly demonstrated that holding it in place can also pose a major challenge. He manoeuvred the shoulder into the ideal position for the procedure and secured it using pulleys and a weight from the gym. When the industry fails to provide the perfect solution, it’s not all that unusual for hospitals to get creative and produce their own devices. To repair the defect arthroscopically, Prof. Kasten employed thread anchor systems that can be used to

suture damaged parts of the capsule or ligament. Primarily addressing the medtech engineers, he remarked that, in his opinion, there was still some way to go to perfect the anchor fastenings.

Co-organiser Dr. Klaus Eichenberg from BioRegio STERN Management GmbH concluded proceedings by inviting the participants to the next “Incisions and insights” event in the coming year, when the focus will be on “Digitalisation, fusion, and AI in surgery”. “It’s a globally unique initiative. The way medical professionals and medtech engineers meet here truly is business development in the strictest and best sense of the term,” he emphasised.

The workshop series is organised by the Interuniversity Center for Medical Technologies Stuttgart-Tübingen (IZST) at the universities of Tübingen and Stuttgart, BioRegio STERN Management GmbH and Verein zur Förderung der Biotechnologie und Medizintechnik e. V.

Topic for the next “Incisions and insights” workshop:
Digitalisation, fusion, and AI in surgery
Online dialogue: 25 January 2023
In-person dialogue: 28 June 2023

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.

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