MEDICAL 3D-PRINTING LAB WAS OPENED AS PART OF CAMED AT THE MEDICAL UNIVERSITY OF GRAZ

IN THE FUTURE, PATIENT-SPECIFIC IMPLANTS AND PROTHESIS CAN BE PRINTED IN GRAZ DIRECTLY AT THE CLINIC. BY THIS MEANS, INDIVIDUALIZED AND COST-EFFECTIVE PATIENT TREATMENT ISN’T AN ILLUSION ANY MORE.

Only one year into the CAMed Project – on October 8, 2019 – a “Medical 3D-Printing Lab” was founded in the Surgery-Department of the Medical University of Graz. All CAMed partners as well as around 100 interested guests from the clinic, press, politics and the funding institutions FFG and SFG participated in the opening ceremony at the Medical University of Graz. The opening ceremony provided demonstrations of the potential of additive manufacturing technologies for the optimization of patient treatment.

The close proximity of the 3D-Printing lab with its high performance APIUM and HAGE3D printers to the operation theatres at the University Clinic Graz enables a fast and efficient implementation of these technologies into the clinic and the precise manufacturing of patient-specific implants, models for pre-surgery planning as well as individual prostheses. The University Clinic Graz is the first clinic in Austria that will manufacture patient-specific implants in-house.

To be able to establish this new technology directly at the clinic, patient data based on CT and MRI have to be translated to virtual, 3D-printable models. Suitable materials as well as printing technologies have to be selected and their mechanical and biological characteristics have to be analysed. Additionally, continuing process management as well as constant quality controls are necessary to be able to keep up the extremely high standards in medicine.
SUCCESS STORY

In addition to the 3D-printers in the clinic, CAMed partners will support the approach for a variety of applications by providing further specific additive manufacturing technologies, such as the Polymer Freeformer by Arburg. The CAMed project partners Joanneum Research, LSS and Lithoz specialize in the optimization of their printers for metals and ceramics, respectively.

Impact and effects

The opening of the Medical 3D-Printing Lab was comprehensively covered by the press. The new technology and the significance for patients and medical staff were thereby mediated to the broad public. For the health system, this is a crucial step towards personalized and cost-effective patient treatment. At the moment, all CAMed partner institutions are intensively working on the fast development of optimized, patient-specific implants and prostheses for different medical applications.

For the training of students as well as preparation of surgeries, patient-specific models from various tissues are an essential advantage.

© Medical 3D-Print, patient-specific model of a fractured pelvis

The major aim of the CAMed project for the future is, not only to be able to patient-specifically print hard tissues, but also soft parts such as tendons, muscles or vessels.

Project coordination (Story)
Professor Dr. Ute Schäfer
Scientific Manager CAMed
Medical University of Graz

T +43 (0) 316 385 71631
ute.schaefer@medunigraz.at
www.medunigraz.at/camed

Project partner

Apium Additive Technologies (Germany), Arburg (Germany), CAE Simulation & Solutions (Austria), Evonik Resource Efficiency (Germany), FARO Europe (Germany), HAGE3D (Austria), Heraeus Deutschland (Germany), Hofer Medical (Austria), Ionbond Austria (Austria), Joanneum Research (Austria), Lithoz (Austria), LSS (Austria), Max Planck Institut (Germany), Mitsubishi Advanced Chemical Materials (USA), Montanuniversität Leoben (Austria), Technische Universität Graz (Austria), voestalpine Böhler Edelstahl (Austria)

This success story was provided by the CAMed Management and by the mentioned project partners for the purpose of being published on the FFG website. CAMed is a COMET Project within the COMET – Competence Centers for Excellent Technologies Programme and funded by BMVIT, BMDW and the Styrian Government (SFG). The COMET Programme is managed by FFG. Further information on COMET: www.ffg.at/comet