

Planning the future

Using 3-dimensional software
in hip surgery



©St. Josefs Hospital Wiesbaden

St. Josef Hospital, Wiesbaden, Germany

mediCAD[®]
The Orthopedic Solution



An interview with Dr. med. Philipp Rehbein St. Josefs-Hospital Wiesbaden

Using digital, 3-dimensional preoperative planning software in hip surgery

Hip joint prostheses are the most frequently used artificial joints in Germany. Approximately 250,000 hip joints per year are replaced with short or straight-shaft prostheses by specialists in Germany. This is the result of an OECD study. Quality of life of many affected people can thus often be restored.

Accurate preoperative planning is crucial to install an endoprosthesis at the lowest possible risk, with the objective of achieving a reliable locomotor system.

Use of digital planning software can substantially facilitate the surgeon's pre-planning and documentation that are legally required. All steps to be performed during surgery can be simulated in advance, therefore minimizing the probability of complications.

2D and 3D planning tools are available as software solutions for the attending physician. Planning with 2D software has nowadays become standard in many hospitals. But the use of 3D planning software is a trendsetting step. The 3D planning tool is especially convincing in the area of short-shaft planning.

As forward-looking hospital that wants to guarantee the best-possible medical care for its patients, the St. Josef Hospital at Wiesbaden, Germany, has long been relying on mediCAD® as planning tool for endoprosthetic interventions. With mediCAD® 3D Hip, the St. Josef Hospital has an innovative software at its disposal that enables optimum, revision-proof and modern operation planning in the area of hip surgery.

Since successful restoration of a functioning locomotor system is not just dependent on operation planning, the hospital relies on the quality of prosthesis manufacturer Mathys Ltd. Bettlach for long-lived hip prostheses.

Dr. med. Philipp Rehbein, MD, chief physician at the Center for Orthopedics, Spine and Trauma Surgery of St. Joseph Hospital, Wiesbaden, Germany, talks with us about the challenges of hip surgery, the reasons for using mediCAD® 3D Hip in short-shaft planning and its lead over 2D planning.

Dr. med. Philipp Rehbein

has been chief physician at the Center for Orthopedics, Spine and Trauma Surgery (ZOWU) of St. Josef Hospital, Wiesbaden. In the largest Clinic for Endoprosthetics in the Federal State of Hesse, over 1,200 hip endoprostheses are implanted per year by Dr. Rehbein and his team.

The hip expert completed his orthopedic training at the General Medical Clinic St. Georg in Hamburg and the Institute for Biomechanics of the Technical University Hamburg-Harburg. Additional stages in his career were the Orthopedic Clinic/ Park-Clinic Grosshansdorf and the Orthopedic University Clinic Stiftung Friedrichsheim in Frankfurt a.M.



The Interview

Question:

Dr. Rehbein, as an experienced surgeon, where do you see the main challenges in hip surgery, and how can accurate planning help to improve the clinical result of a hip prosthesis?

Dr. med. Rehbein:

The surgeon must have optimum overview when using his routine access (my favorite access is anterolateral with the patient in the supine position, that can even be performed in a low or minimally invasive manner). This way, the information gained from preoperative planning regarding size and orientation of the implant can be implemented best. Precise planning supports the surgeon to restore functional anatomy, strength ratio and solid movement.

An interview with Dr. med. Philipp Rehbein St. Josefs-Hospital Wiesbaden

It is primarily the patients who profit from mediCAD® 3D Hip

Question:

From your point of view, what is the added value of mediCAD® 3D Hip for Clinics and also for the patients?

Dr. med. Rehbein:

In the first place, I see the additional value for the patients. Even later in life, demands regarding activity and physical mobility are high. The same is true for younger patients anyway. Essential preconditions for fulfilling these demands can therefore be set by three-dimensional prosthesis planning with mediCAD® 3D Hip. Of course, the risk and complications rate must be kept as low as possible. At this point, not only patients, but also clinics will profit since their quality data become increasingly transparent in registers and quality reports.



© Orthopädisches Krankenhaus Schloss Werneck

The future

Question:

Looking at the trends and developments, what could be the next pathbreaking step in terms of hip endoprosthetics planning?

Dr. med. Rehbein:

Even though three-dimensional planning is superior to two-dimensional planning in many areas, it is still very time-consuming. Software solutions with simple and userfriendly workflows keeping the time factor as low as possible will be pioneers here. In addition, I am sure that intraoperative monitoring of perfectly precise planning data during operation must be adjusted to the planning stage precision in the future. At the current stage, this is done by the surgeon only by means of visual / subjective observation and evaluation of the intraoperative X-ray or image converter shot. Strictly speaking, precise monitoring of the biometric data gained from planning can then only be performed digitally. These developments presumably go in the direction of navigation or even robotics. Endoprosthesis surgery using a good access and a good implant is already a very safe and successful procedure, but thanks to digitalization I see potential for a still more precise intraoperative quality control. A further improvement in this direction could then also be to increase the indication range for endoprosthesis operations.

**We would like to thank Dr. med. Rehbein very much for his support.
This report was prepared in cooperation with Mathys Ltd. Bettlach.**

mediCAD GmbH

In 1994, mediCAD GmbH began developing software solutions for orthopedic surgeons. In 1999, mediCAD GmbH became the first company in the world to provide a software program that allows fully digitalized pre-operative planning of a joint replacement with just a few clicks.

www.medicad.eu

Mathys Ltd. Bettlach

The Swiss orthopaedic company was founded in 1946. The portfolio of the company currently ranges from implants for hip, knee and shoulder to bone graft substitute synthetic. In 2013, Mathys has entered the sports orthopedic market.

www.mathysmedical.com

mediCAD® - Healthcare with intelligence



Hip



Knee



Long Leg



Upper Extremities



Trauma



Foot



Spine



Template



mediCAD Hectec GmbH

Opalstr. 54
DE-84032 Altdorf

Phone +49 871 330 203-0
E-Mail: info@mediCAD.eu