

Klinikum rechts der Isar,
Munich - Germany plans
orthopedic surgeries with
mediCAD®



A report by Dr. Franz Liska and Dr. Kay Eichelberg,
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mediCAD®
The Orthopedic Solution

Should operations be planned digitally or analog?

This kind of question does not come up for institutions such as the Clinic and Polyclinic for Orthopedics and Sports Orthopedics at the Klinikum rechts der Isar in Munich, Germany because analog planning with templates and X-ray images does not meet the requirements placed on precision and documentation. The time required for analog surgical planning and documentation also no longer suits today's daily hospital routine.

Moreover, digital planning permits a seamless exchange of patient and surgical data within a hospital's digital systems. This, too, saves time and reduces sources of error. All this benefits the patient: Digital surgical planning provides the essential basis for providing the patient with a perfectly fitting prosthesis in a short, uncomplicated surgery.

Basic features are similar

But which digital planning solution best meets the needs of the operating orthopedist and a clinic? **In the Klinikum rechts der Isar, the decision clearly fell on mediCAD®.** mediCAD Hectec GmbH from Altdorf near Landshut, Germany has been developing and selling **mediCAD®** worldwide since 1994. More than 20,000 users in more than 3,200 clinics plan their operations with this tool. Senior physician Dr. Kay Eichelberg: *„The basic features of most of the available digital planning solutions are similar. It was therefore particularly important for us to pay attention to the differences that pay off for us and our patients in our day-to-day work.“*



Dr. Franz Liska from the Department of Sports Orthopedics: *“With mediCAD®, I can plan a femoral and tibial reconstruction simultaneously, view these side by side and compare them.”* The picture shows how a corrective osteotomy of the femur is planned

Differences are crucial

The special features of **mediCAD®** include imaging from the intact side to the deformed side, bilateral deformity corrections also according to Dror Paley, automated femoral or tibial reconstruction osteotomies close to the knee joint, intertrochanteric osteotomies, direct transfer of all planning data into “EndoDok,” and automatic detection of the calibration sphere.

mediCAD® is particularly intuitive

Dr. Kay Eichelberg and his colleague, Dr. Franz Liska from the Department of Sports Orthopedics, see a major advantage in **mediCAD®** in the fact that the program offers the planning steps exactly in the order in which the physician expects them. *„Every vendor promises that his solution is user-friendly and intuitive“, says Dr. Liska. „However **mediCAD®** delivers on this promise much better than comparable solutions we had installed in the clinic.“*

This becomes especially clear when colleagues start familiarizing themselves with **mediCAD®**. This happens very fast and without any significant training. After about five plannings, even new physicians know the program so well that perfect plannings - including the complete documentation - are usually performed in just a few minutes. *„A hip planning takes three to five minutes; a knee, a few minutes more“, explains Dr. Eichelberg his experience.*

Identifying difficulties even during planning

Depending on the situation, **mediCAD®** supports the planning physician with suggestions for suitable implants, identifies options or points out planning results that are outside the normal range. Thus, any potential problems can already be identified during planning - and not just during surgery. An example of this is instructions that are displayed when planning a leg axis correction when angles deviate from the normal range.

Exceptionally comprehensive prosthesis database

In addition to this outstanding advantage, the software also boasts numerous functional advantages for both surgeons and patients. First and foremost is its comprehensive database. It contains more than 500,000 implants from around 130 manufacturers worldwide and is therefore considerably larger than many other similar planning solutions.

mediCAD Hectec GmbH continues developing this database: If a clinic or a practice lacks an implant or is missing a manufacturer, the company, in cooperation with the respective manufacturers, will expand the database to include the implants. This gives the surgeon the certainty of being able to insert an optimal implant for each patient. Increasingly, implants that are individually tailored (“customized”) to the individual patient are being used as well. These play a special role for children since standard implants often do not fit exactly. The implant manufacturer’s CAD data is included in **mediCAD®** for an exact planning.

The company picks up on this development with the new capability for three-dimensional planning using the **mediCAD Hip® 3D** and **mediCAD Knee® 3D** modules.



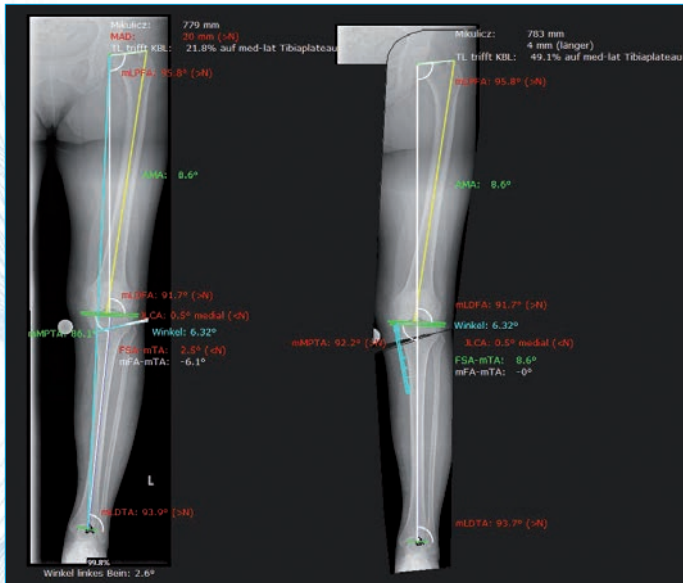
Senior physician Dr. Kay Eichelberg: *“mediCAD® combines an exceptionally comprehensive implant database with a particularly simple and intuitive operation.”* The picture shows how a hip total endoprosthesis is planned.

Automatic feature saves time and avoids mistakes

The clinic's years of experience with **mediCAD**[®] demonstrate additional functional advantages. This includes automatic axis correction - a key requirement for an exact prosthesis fit. This automatic feature saves time and avoids errors that can occur with other solutions through manual correction and angle conversion. This proves to be a great advantage, especially in the case of reconstruction osteotomies.

mediCAD[®] has also been very successful in minimally invasive endoprosthetics using the AMIS[®] method. The clinic uses this procedure for hip surgery. **mediCAD**[®] makes it possible to precisely determine the leg lengths. Leg lengths can be adjusted via the trochanter minor and the distance to the conus.

Parallel reconstruction planning



Precise presentation on the screen:
High Tibia Osteotomy (HTO)

Even double-level osteotomies at clearly pathological joint angles, for example, can be planned precisely and quickly in this way. Another advantage is that the surgeon can accurately show the patient what he is going to do in the operation on the screen, which biomechanical goals the surgery is pursuing, and what the load distribution looks like in the patient's knee before and after surgery. What's more, several options can be played through together with the patient on the screen. „*The patient feels informed, safe and gains trust in me as a doctor.*“ *The corrective options and ability to plan variants without being time-consuming are quite fundamental advantages of **mediCAD**[®].*

In Sports Orthopedics and thus in planning corrective osteotomies, parallel planning and viewing of femoral and tibial reconstruction has proven to be a major advantage.

Dr. Franz Liska: „*I can plan both variants - the correction in the femur and lower leg - simultaneously, view them side by side and compare the desired corrections with each other*“

Cost savings and legal safeguards

From the clinic's point of view, thanks to automatic documentation, **mediCAD®** primarily saves time and thus costs since planings performed with **mediCAD®** are simultaneously fast, precise and error-free. This serves to meet the continuously increasing demand for endoprosthesis. In addition, its comprehensive documentation helps provide legal safeguards - for the involved physicians as well.

Centrally positioning the calibration sphere

In daily practice, the admitting physician plans the operation. This is then discussed with the operating physician within the team and modified as necessary. If, in rare cases, any deviations occur during the surgery, feedback is then sent to the planning colleagues. In Munich, experience has shown that the exact positioning of the calibration sphere when imaging is crucial for any precise planning and implementation. A senior physician is therefore specifically responsible for training the admitting physicians in this area.



Dr. Franz Liska und Dr. Kay Eichelberg

The Klinikum rechts der Isar - a university hospital of the TU Munich

The Klinikum rechts der Isar is, as a university hospital of the Technical University of Munich, a maximum care hospital with correspondingly high quality requirements. It has 1,161 beds and is dedicated, with its approximately 5,500 employees, to patient care, research and medical training. Every year around 60,000 patients benefit from inpatient care, and around 250,000 patients from outpatient care to the highest possible medical standards.



The Clinic and Polyclinic for Orthopedics and Sports Orthopedics at Klinikum rechts der Isar is an EndoCert certified endoprosthesis center and is primarily involved in planning knee and hip arthroplasties, shoulder prostheses, reconstruction osteotomies and - often tumor-related - osteosyntheses. The digital planning software, **mediCAD®**, has already been used for these surgeries for more than ten years. Orthopedics plans five to six surgeries a day, and Sports Orthopedics one to two surgeries with **mediCAD®**. The solution is installed on three PCs. It exchanges data directly with the PACS. All data and plans are automatically permanently stored and can be called up at any time.

mediCAD Hectec GmbH

mediCAD Hectec GmbH has been developing software solutions for orthopedic surgeons since 1994. Our goal is to, in all aspects, digitally enable efficient and secure planning for joint operations - in clinics as well as in practices.

In 1999, mediCAD HECTEC GmbH was the first company worldwide to develop a software program that allows the user to create complete and professional pre-operative planning for a joint replacement in a digital environment with just a few keystrokes/clicks.

With the **mediCAD®** solution, the company has set an innovative milestone worldwide in supporting surgical orthopedics. By automatically archiving all the necessary information and ensuring consistent traceability of the findings, pre-operative preparation and follow-up care, **mediCAD®** offers the ideal opportunity for your optimally prepared, professionally managed and audit-compliant, documented operation, with the correspondingly recorded follow-up care.

Thanks to its close cooperation with leading companies in the medical technology field and the successful use of **mediCAD®** in more than 3,500 hospitals worldwide, mediCAD HECTEC GmbH, with around 50 employees, is already a global player in the field of medical software solutions.

mediCAD®

The Orthopedic Solution

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