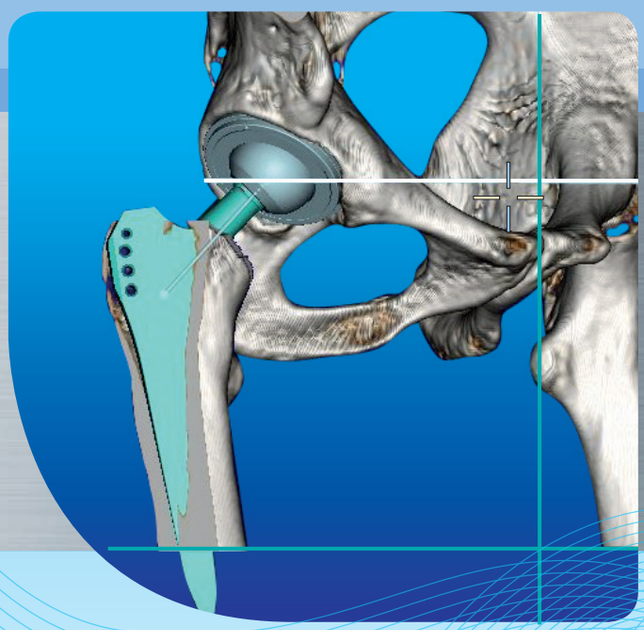
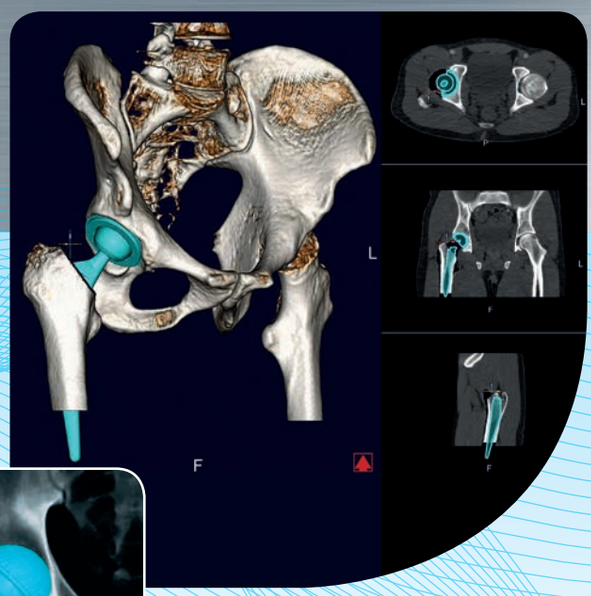
HIP 3D

Automatical view · Segmentation ·
Precise planning · Individual prosthesis

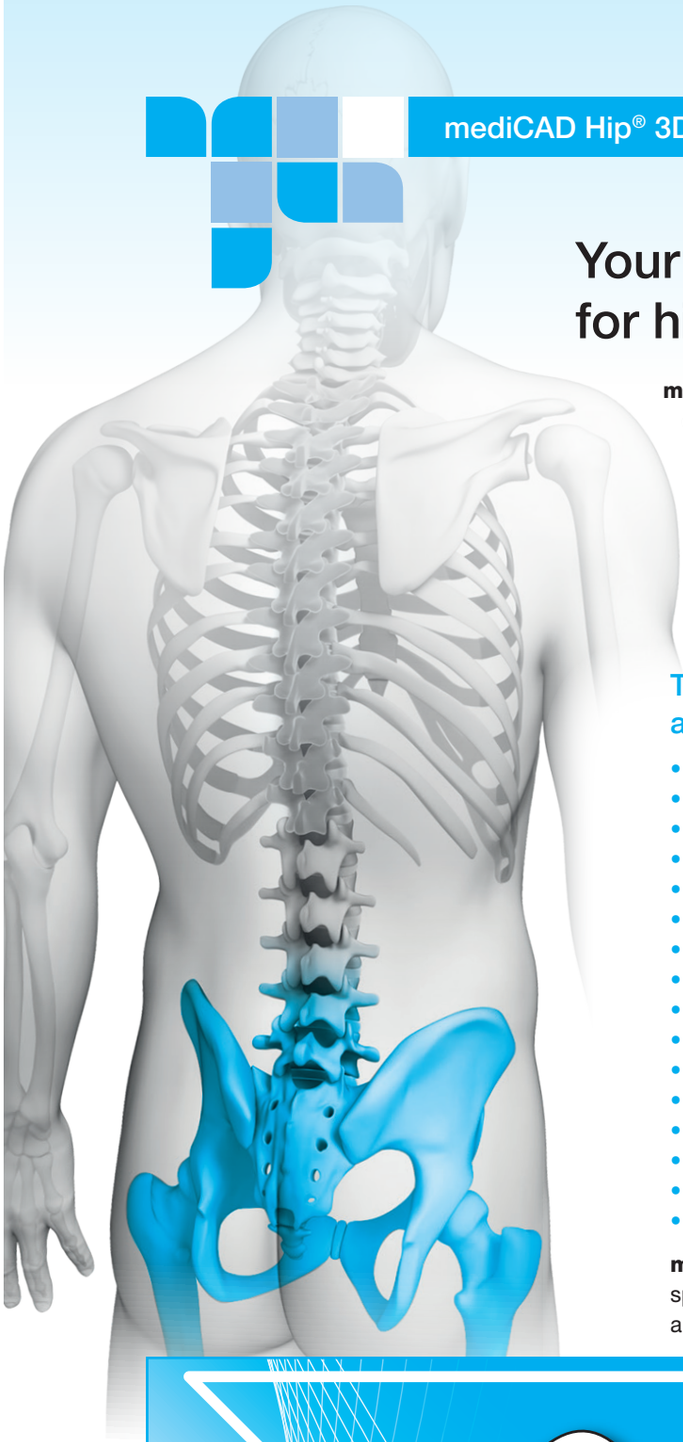




mediCAD®

The Orthopedic Solution

www.mediCAD.eu



Your high-performance tool for hip surgery.

mediCAD Hip® 3D opens up entirely new possibilities in terms of carrying out the anatomical assessment, planning and measurements of the hip, thereby implementing optimal, audit-compliant operation preparation.

A modern and intuitive user interface that takes you straight to your objective and the usual, comfortable connection to an existing PACS system in your clinic are just two of the many reasons why **mediCAD Hip® 3D** is an indispensable tool for your day-to-day work.

The most important performance characteristics are described on the following pages:

- Anatomical 3D and 2D view
- Segmentation of the 3D object
- Simple analysis of the current pathological situation
- Planning of a hip revision
- Precise, simple and automatic measurement processes
- Measurement of the pelvic tilt
- Simple selection and positioning of implants
- Range of Motion (ROM)
- Implant visualization using 3D shapes that is accurate in every detail
- Distance and bone contact visualization
- Transparent view for better recognition of the planned position
- Individual prosthesis
- Removal of the femoral head
- Digital documentation
- 3D print of the bone/body
- Thieme eRef integration

mediCAD Hip® 3D was developed in close collaboration with specialists in the field of hip surgery. Constant development and improvement is the core mission of our company.

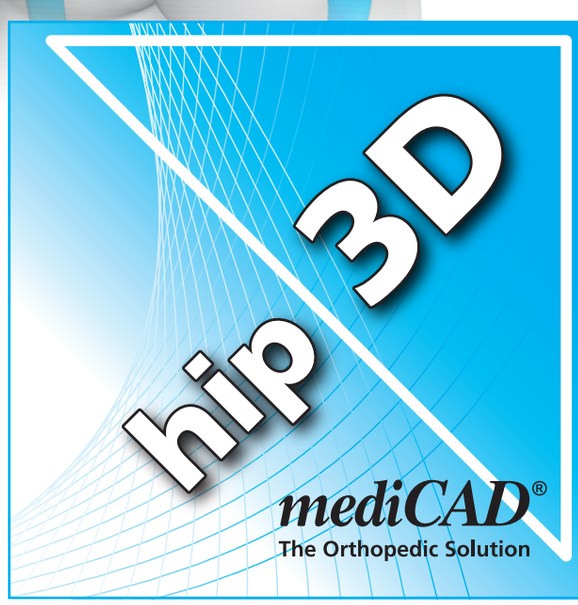
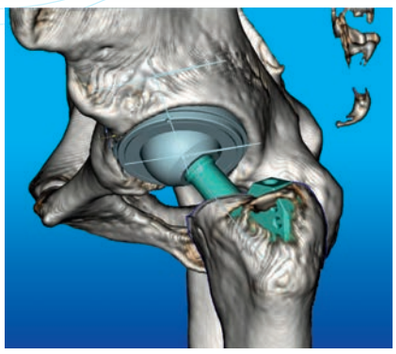


TABLE OF CONTENTS

Planning support and quality assurance



Greetings,

Quality care and concern for patients is the main concern for every practicing surgeon in healthcare. That is why digital operation preparation and digital operation planning is the way of the future! Many countries outside of in the world require this preparation by law. As an extra step of precaution for your practice, the use of digital image preparation becomes a seal of quality assurance to your patients and truly sets you apart as a healthcare provider. Digital images are becoming the standard in operation planning and is the basis for successful and efficient implant care.

With the **mediCAD Hip® 3D** software you can utilize this proven approach to plan a joint replacement procedure before the operation occurs, using a high-resolution, three- dimensional CT image. This allows you to choose the most suitable implant dimensions, while also allowing you to plan for precise positioning. Just as importantly, the **mediCAD Hip® 3D** solution can be used to decrease the operation time, providing you with the opportunity to make certain decisions which you normally would have to make during the operation. Rehabilitation can also be accelerated through precise geometric restoration of the hip joint. Finally, complications can be greatly reduced as the **mediCAD Hip® 3D** allows you to view the third level during your surgery preparation and challenges can be resolved before the operation ever occurs.

Another great aspect of **mediCAD Hip® 3D** is that it provides a way to simplify and substantiate academic papers more efficiently. The discussion and coordination during every day work will become clearer and more transparent, thus providing an increase in quality and quality assurance. We have received many positive reviews and great feedback from those who use **mediCAD Hip® 3D** and we would be happy to provide you with these references. We fully stand behind our product and believe that the concept and user-friendly software will win you over! You will also find the implant database, which is updated on a monthly basis, to be greatly beneficial. You can arrange a free, non-binding demonstration of our system and see the benefits for yourself.

We look forward to hearing from you,
mediCAD Hectec GmbH

mediCAD®
The Orthopedic Solution

Let us present the solution, our sales team is happy to help and will answer any further questions you have.

Tel.: +49 871 330 203-0
Email: sales@hectec.eu

INFORMATIONS

Our systems are developed with doctors for doctors, which means the following for you and your patients:

- **mediCAD®** is the first planning program in the world and is also the most used in the industry
- The known planning methods are taken into account
- Modular structure with high-performance add-on modules
- "User-Friendly": Easy and intuitive to operate
- All processes are documented in compliance with the law
- Saves up to 90% of time compared to conventional planning
- Collaboration with 130 international implant manufacturers
- FDA approved: 510(k) approval for **mediCAD®** was granted by the FDA (K140434)
- **mediCAD®** is approved as a medical device in the Russian Federation. Certificate PY P3H 2017/6580 from 15.12.2017. Unique number of the registry entry 24304
- **mediCAD®** is constantly being updated with doctors for doctors
- You will have access to special functions and modules which are constantly being developed
- **mediCAD®** has been successfully used in the medical industry for more than 20 years

Made in Germany

Import assistant / interactive help

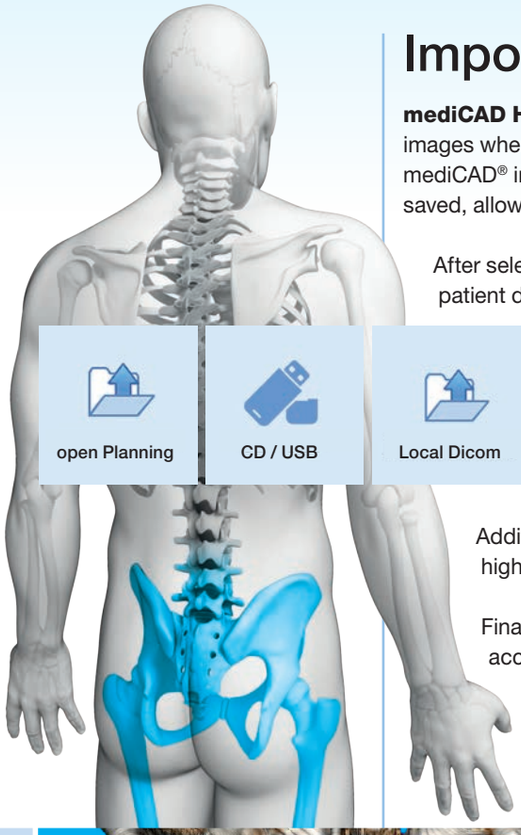
mediCAD Hip® 3D offers the freedom to save the location of your patient data and images wherever you like. You can load the images from PACS system via the new mediCAD® interface Query Client® as well as access a plan you have previously saved, allowing you to more quickly reach a work area for immediate processing.

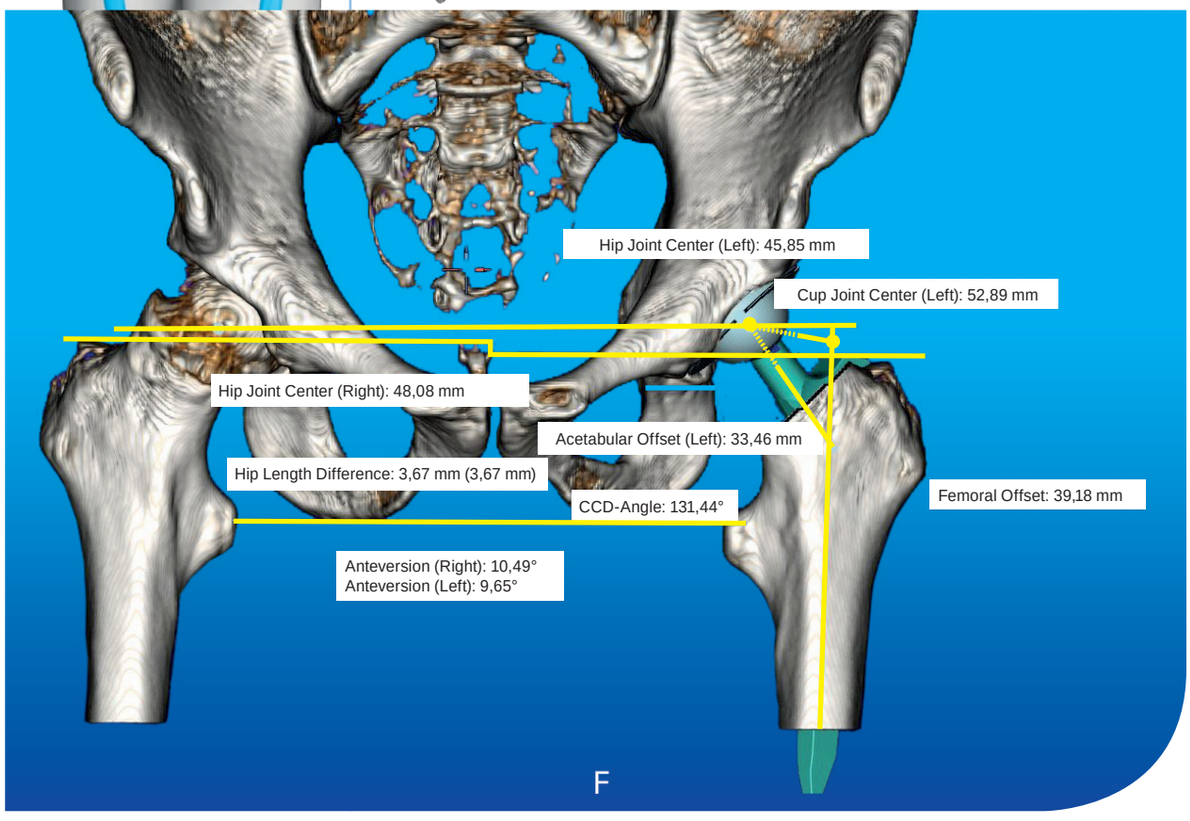
After selecting the respective location you wish to save, all of the available patient data in the selected folder and sub-folder are displayed in the working area of **mediCAD Hip® 3D**.

While you are creating your surgical plan, interactive help will be available that provides support in the form of a schematic representation and a list of all procedural steps.

Additionally, clear informational texts and images will be used to highlight the respective areas and functions in the application.

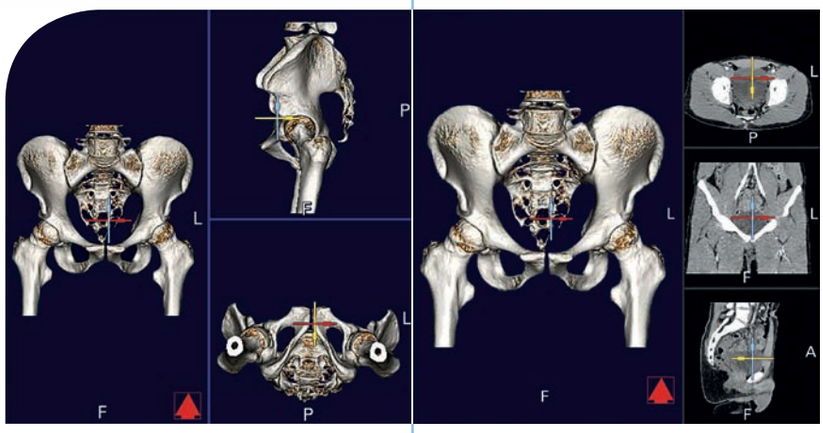
Finally, your work will be accelerated through constant access to an overview of all supporting information.





Anatomical 3D and 2D view

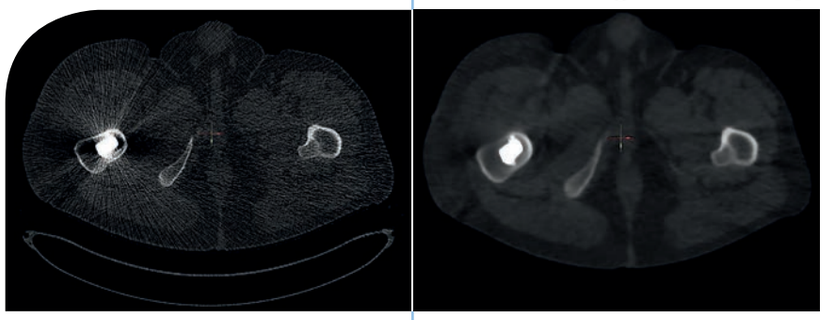
mediCAD Hip® 3D offers you numerous displays with an assortment of images and plans for the anatomical view. This software provides access to view the 3D image from a variety of perspectives, which is, at times, necessary.



In addition to the 3D model, that can be viewed from all sides, you can also show individual 2D slices in an axial, sagittal or coronal plane. You can also display and view the 3Dmodel from several different directions at the same time.

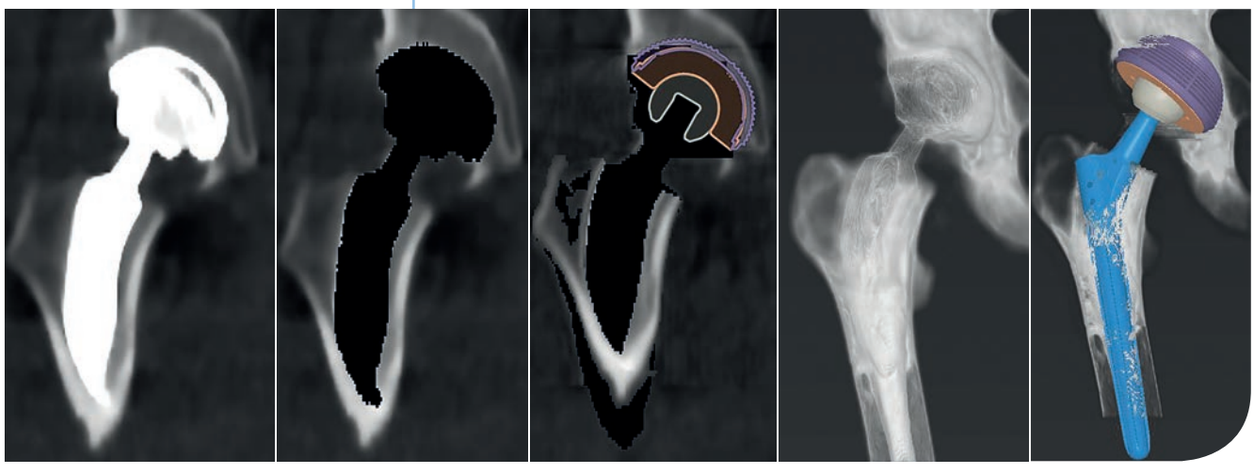
Furthermore, in order to better access the pathological condition, you can switch to the anatomical view.

Planning of a hip revision



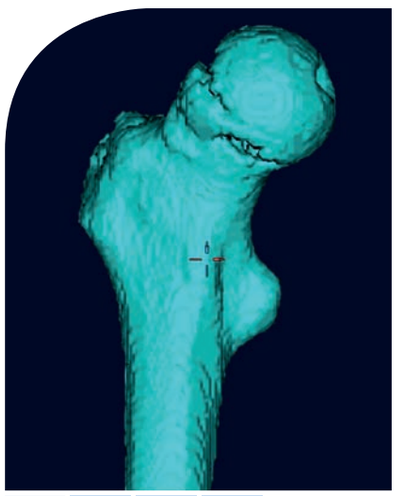
The indications that a prosthetic replacement is needed vary and the cause must be clarified before surgery. Doing a hip revision is a long and complex surgery. It requires extensive planning and the use of specialized implants and tools.

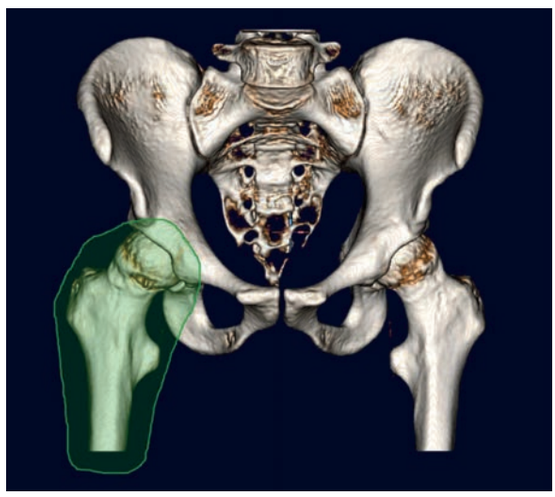
mediCAD Hip® 3D reduces distracting metal artefacts. Implants that are essential for the planning are going to be blanked. In addition, **mediCAD Hip® 3D** offers a variety of modular and revision specific implants already included in its huge database.



Bone segmentation and osteotomies

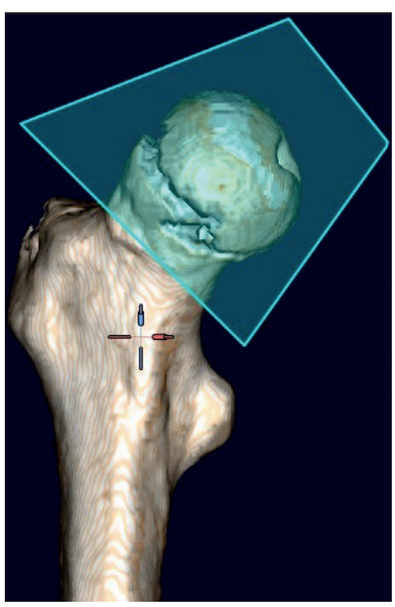
Manual segmentation is an important component of preoperative planning in hip endoprosthesis. This segmentation can be used to freely display certain areas of the bone in a high-resolution, three-dimensional image.
For example, segmentation can be used to make the femur more visible to determine the condition of the joint prior to surgery.



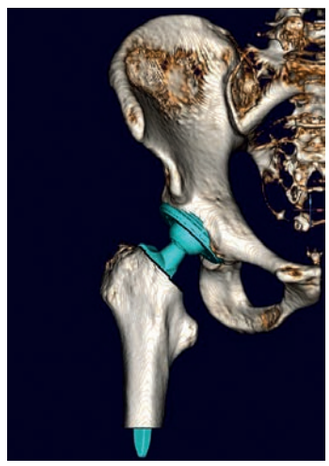


When you set a cutting area, you can carry out an osteotomy and move or rotate the areas to be resected as needed. All of the dimensions are automatically adapted reflect the new dimensions.

This allows simulation and testing of a variety of scenarios, resulting in the best possible result for your patient.



In combination with manual segmentation, the femur can be cropped by inserting the resection line (osteotomy) and the ball of the hip can be removed.



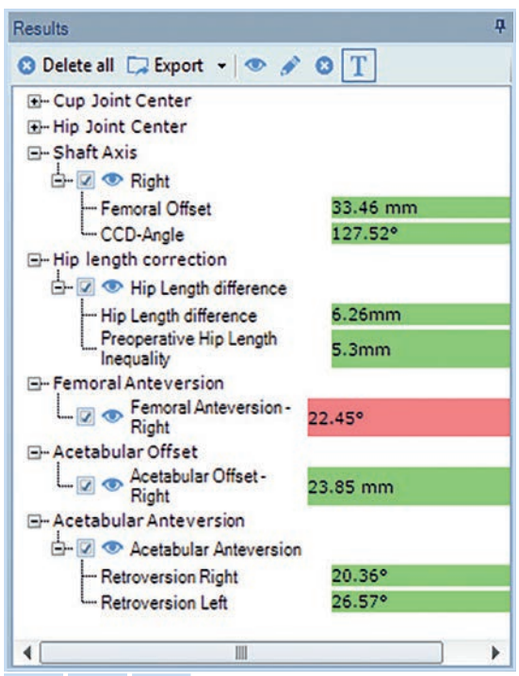
Simple and precise measurement methods

The **mediCAD Hip® 3D** module supports you with hip endoprosthesis planning. A wide range of classical measurements can be carried out and recorded:

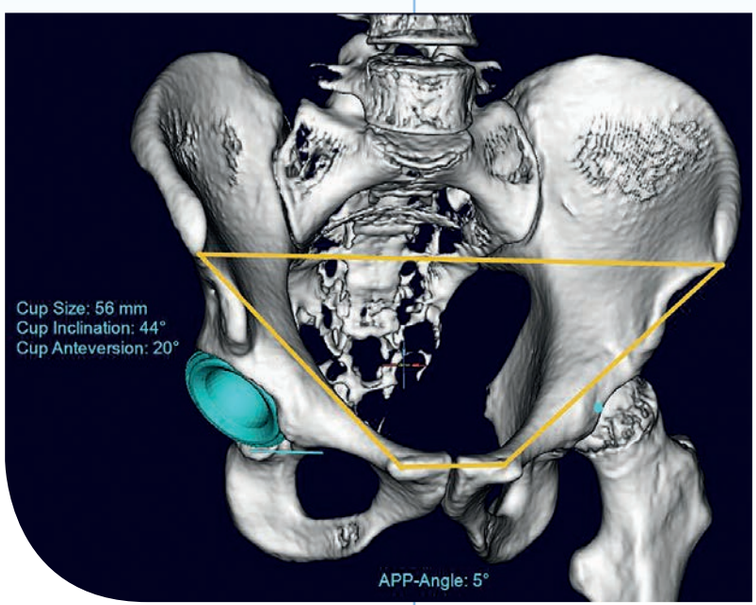
- Precisely determine the center and the diameter of the socket
- Precisely determine the center and the diameter of the hip joint
- Automatically determines the femoral offset
- Automatically determines the CCD angle
- Determines differences in hip length
- Determination of the acetabular anteversion
- Calculation of the femoral anteversion
- Acetabular offset
- Distance and angle dimensioning

The measurements are displayed both directly in the 3D model and recorded in a structured list of results. Where possible, an evaluation is carried out in compliance with the normal range and then values and results outside of this range are shown using colors.

In other words, **mediCAD Hip® 3D** helps you with time management! It also provides you with the opportunity to spend more time advising your patient and preparing for the upcoming operation.



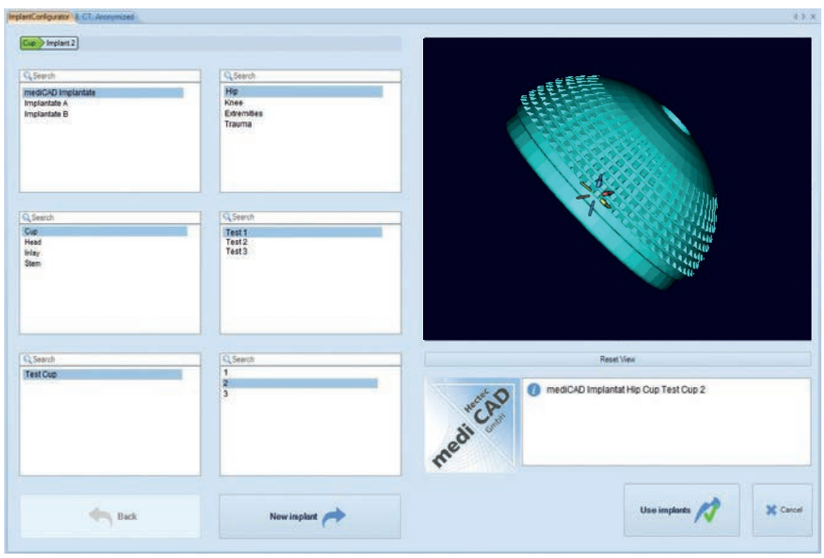
Measurement of the pelvic tilt with the „Anterior pelvic plane“ (APP)



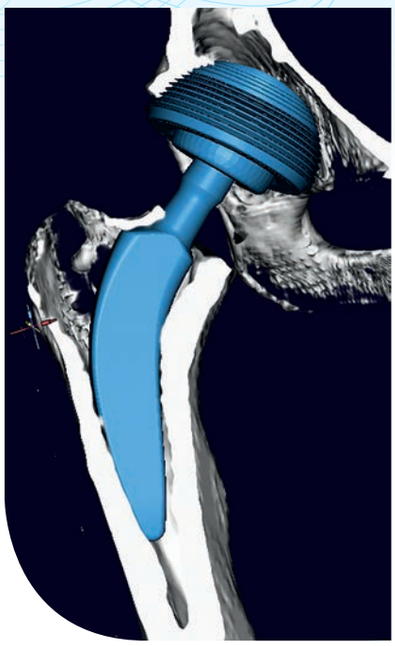
The alignment of the hip joint components is very important in hip arthroplasty and hip replacement. For the alignment of the acetabulum, the pelvic coordinates are reconstructed on the 3D image. The anatomical landmarks are placed on the anterior superior iliac spine and the pubic tuberculum. Defining these landmarks creates the “anterior pelvic plane” (APP).

The pelvic tilt is defined as the angle between this anterior pelvic plane (APP) and a vertical line in an upright position. Important interindividual variations of this angle may affect the final functional anteversion of the acetabulum and improve the positioning of the acetabular cup.

Implants



The easy options provided by **mediCAD Hip® 3D** can compile the individual implant components using the implant configurator and place this into the 3D model (CT images of the patient). In addition to this, the implants can be adjusted, rotated, moved or changed to another implant type as a group or individually.



The implant configurator enables you to select various hip implants. You can filter your implants by manufacturer, type, material, size or simply your personal favourites.

The implants you have selected and frequently used are compiled in a list of results with all relevant parameters and can therefore be used for further planning and preoperative preparation.
More than 15 years of collaboration with a large number of international implant manufacturers means that **mediCAD Hip® 3D** includes the latest expertise. It also includes an implant database that is supplemented and updated monthly.

Transparent view and implant-bone contact visualization

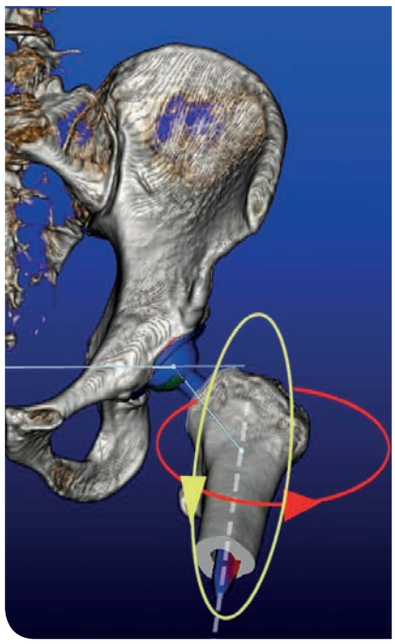
Since each image and each plan is different and follows a different objective or requires a different approach, you can use the transparent view to better observe the implants used in their respective positions.
It is often necessary to visually determine the quality of the bone at the planned implant position. The Hounsfield visualization provides support on this.

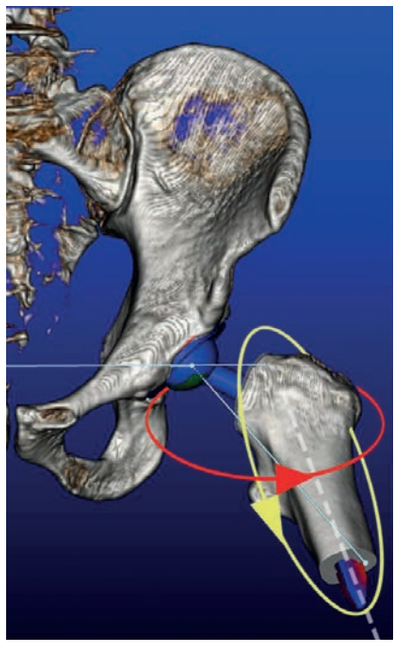
High and low density values can be observed at the planned implant location. Higher or lower primary stability can therefore be assumed when inserting the implants. The distance visualization of the Hounsfield units can be used to create concepts for preoperative planning in order to determine the correct preparation technique and the consecutive prosthetic solution.

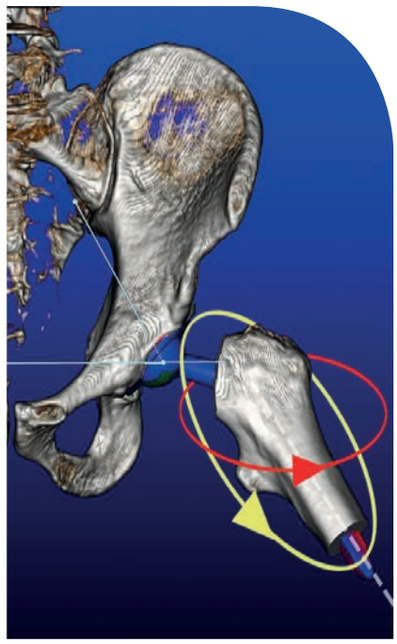
ROM (Range of Motion) simulation

The abnormal shape of the bones that lead to hip impingement is sometimes not identified by classical radiology. The complex relationship between the shape of the cup shell, the shape of the femoral head and how these interact with one another during movement is difficult to picture without visual representation. Hip problems are dynamic and multi-dimensional. The current static imaging leaves a lot to the imagination.

The simulation function in the planning software with movement simulations for hip impingement closes this gap. It offers an interactive 360° 3D view of the hip joint, while moving. The function can be used to determine which movements may be restricted after the implant that are due to the shape of the pelvic bone.







Thieme eRef integration

Effective immediately, the preoperative planning software **mediCAD®** includes the content of Thieme eRef. **mediCAD®** supports doctors with the planning of operations digitally. Thieme eRef contains situation-based and case-based medical information from Thieme reference books and journals and information from databases that doctors can use.

By integrating eRef into the **mediCAD®** planning software, doctors can now access the content in eRef at any point during digital operation planning. **The use of eRef is free of charge for 14 days after registration.**

Manufacturer information

mediCAD Hip® 3D requires Windows 7/10, 64 Bit with .NET Framework 4.6.1 and a current process with at least 4 x 2.6 GHz and a RAM of at least 8 GB. Recommended display resolution: Full HD. No diagnostic monitor is required.

Training - 3D ➡

mediCAD Hip® 3D is user friendly and you will be intuitively guided through the program. The software does not require any prior knowledge of computer programming and is easy to learn. All instructions are easy to access and clearly shown on the interface. Training generally takes approximately 3-4 hours.

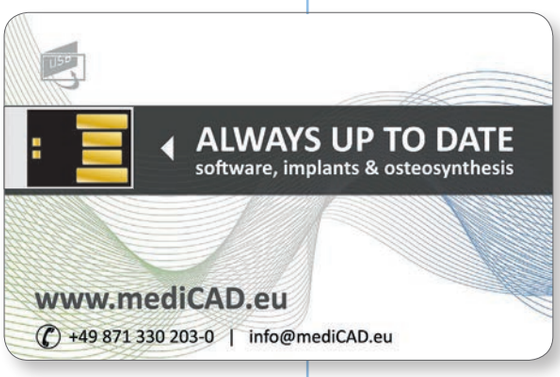
mediCAD Hectec GmbH is happy to offer you qualified training sessions on each module. The training sessions can either be conducted in your workplace or carried out online via internet. X-ray, CT and MRI images are read in DICOM® format via an interface with your PAC/RIS system. **mediCAD Hip® 3D** communicates with all DICOM® interfaces and is therefore compatible with all PAC systems. Most common image formats can also be read.

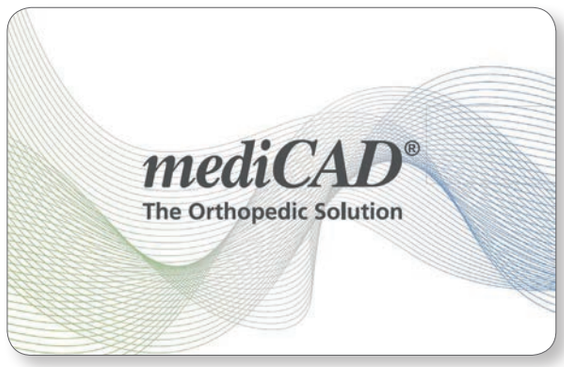
Let us present the solution, our sales team is happy to help and will answer any further questions you have.

We are certain that our software will be your solution! Our sales team is happy to help and will answer all further questions that you might have.

You can also order a free demo version of **mediCAD Hip® 3D**.
The demo version corresponds to the full version of the program and is valid for **30 days**. There are no restrictions on the functionalities and the implant databasein the demo version. To order the demo version, please contact us at:

+49 871 330 203-0
+49 871 330 203-99
www.mediCAD.eu
sales@mediCAD.eu





Successful surgery by digital planning

Additional products by mediCAD Hectec:

Headquarters:

mediCAD Hectec GmbH
Opalstraße 54
DE-84032 Altdorf
GERMANY
+49 871 330 203-0
+49 871 330 203-99
info@mediCAD.eu
www.mediCAD.eu

U.S. Representation

mediCAD US, Inc.
1170 Howell Mill Rd. NW, Suite 300
Atlanta, GA 30318
USA
+1 404 263-3123
+1 404 586-6820
info@mediCAD.us
www.mediCAD.us