Pre-operative planning in 3D

Modern planning systems with 3D images let orthopaedic surgeons diagnose and plan orthopaedic procedures—for instance knee, hip and complex trauma surgery—with greater accuracy and confidence. With increased precision in planning and more advance preparations, surgeons and operating teams can reduce stress, save time, and minimize risk during surgery. For the patients, planning reduces the risk of post-operative complications. For hospitals, it creates a well-documented workflow to meet regulatory demands and improves the teaching facilities.

SECTRA

Knowledge and passion

Plan complex trauma cases

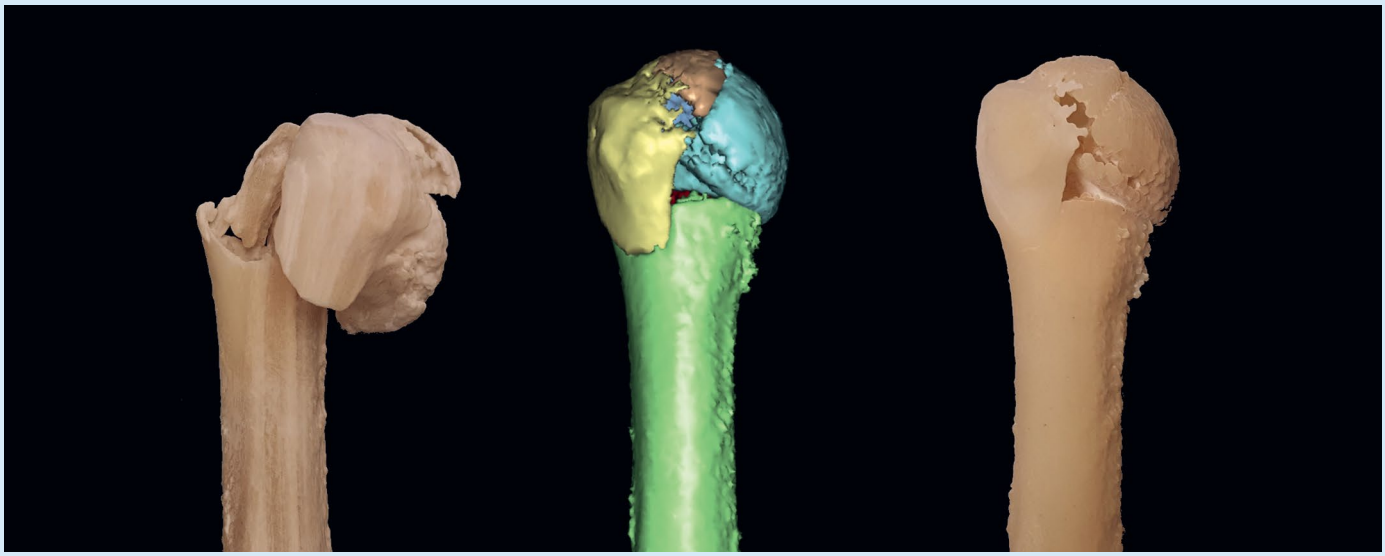
Sectra's pre-operative planning solution for 3D images can improve understanding of complex fracture cases. The solution can also assist trauma teams in correctly diagnosing and planning for surgery. This assistance becomes invaluable when striving for superior outcomes and increased operating room efficiency.

3D Pre-operative planning system

Sectra's planning solution uses 3D images to improve understanding of complex cases, especially those with multiple fragment traumas. It enables the trauma team to correctly diagnose and plan for surgery, saving valuable operating room time while improving the quality of the diagnosis and treatment plan.

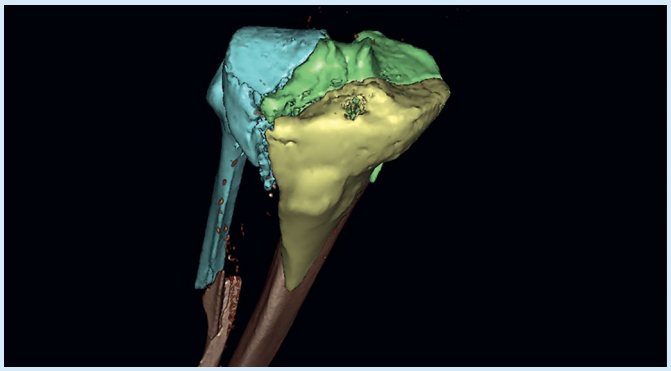
Dedicated tools for the orthopaedic surgeon

Sectra's solution makes it is easy to visualize trauma structure, and diagnose fractures, without first opening the patient. With the advanced bone segmentation tools, the orthopaedic surgeon can study joint surfaces, or previously hidden areas, before deciding on a treatment plan.



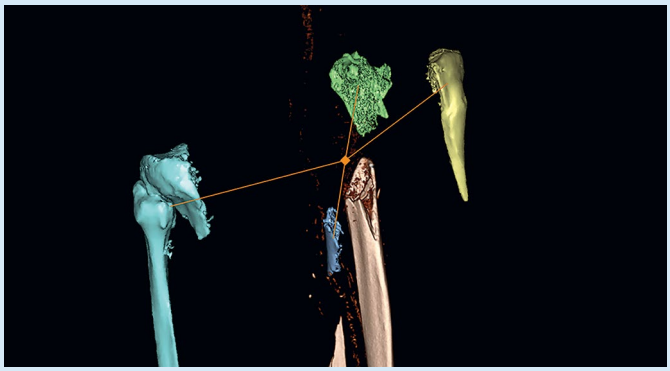
Export bone fragments for 3D print

Bone fragments can be saved and exported as STL and OBJ files. These files can be used in 3D printing, allowing for further surgical planning and educational use.



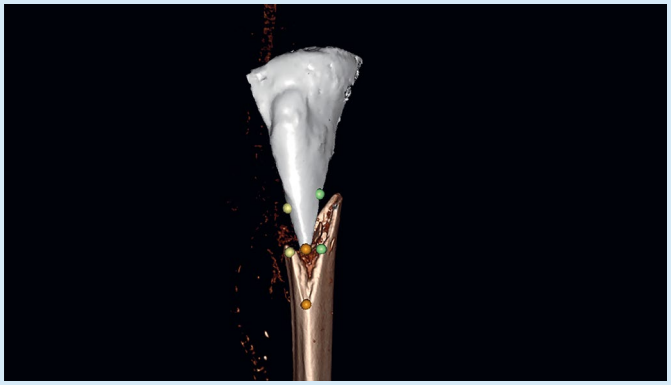
Bone segmentation

The bone segmentation tool allows users to mark bone fragments and choose whether they remain on screen, are hidden from view, or are marked for repositioning. Each fragment becomes color-coded for easy visualization. After marking a bone fragment, the system automatically creates a new color. Fracture segmentation possibilities are infinite.



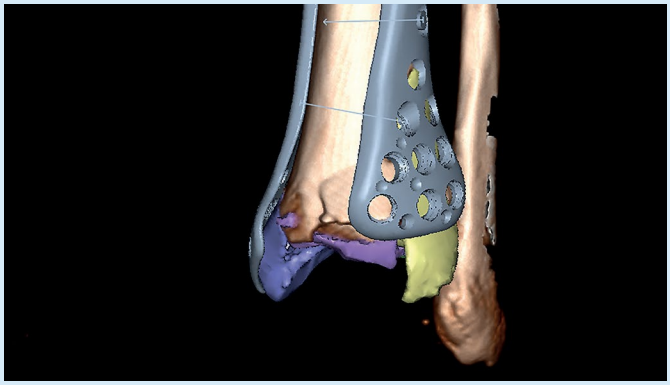
Explode

Using the explode function to gain a quick overview of the fractured area, the system can give a cutaway view by moving all of the marked bone fragments away from the center of the fracture. This helps to confirm that no fragments have been left behind and that no other structures will potentially interfere with implants.



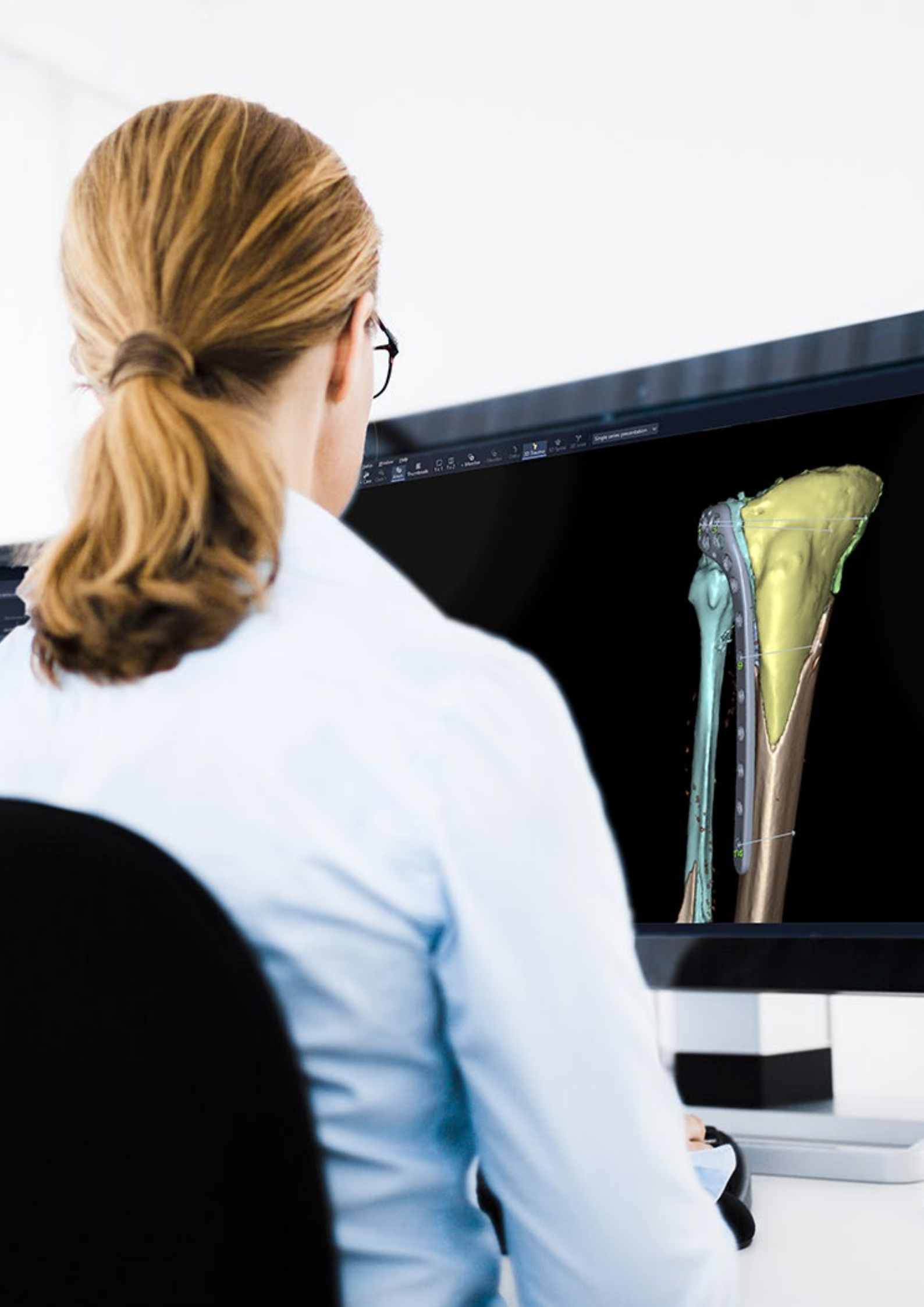
Bone alignment

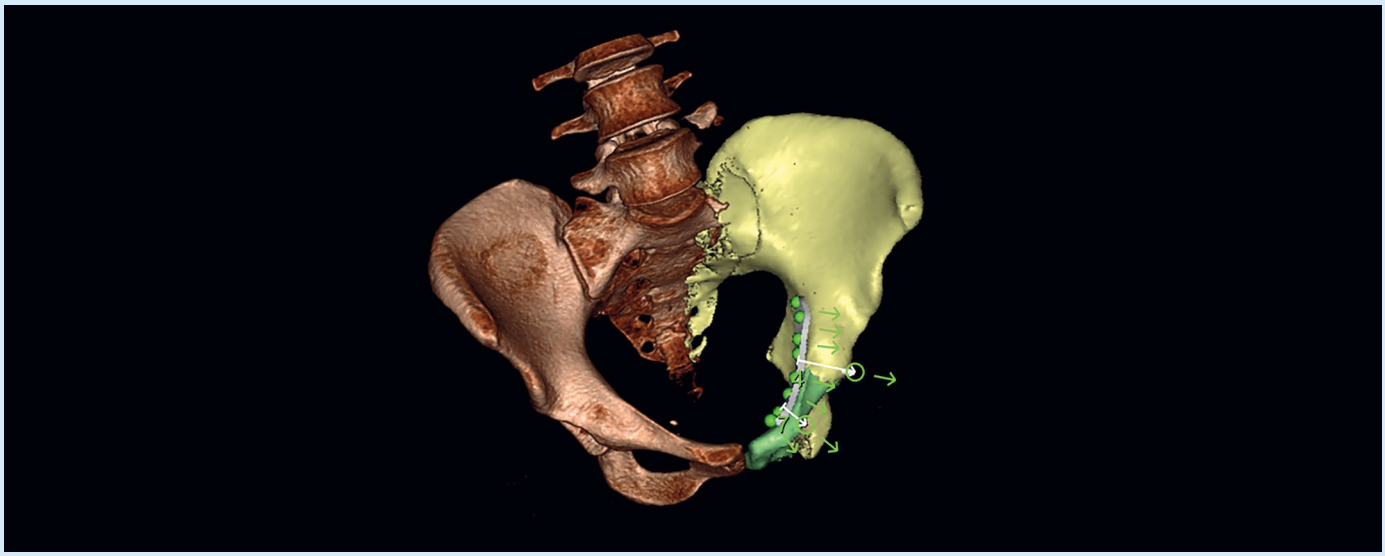
When bone segmentation is complete, the marked fragments can be repositioned manually. Bone alignment can also be done automatically by simply choosing landmarks for the software to identify.



Templating

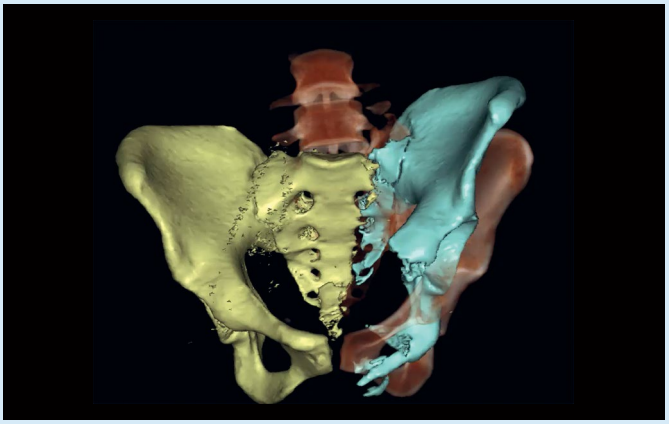
Template placement can be done in 3D space and screws added with an automatic extension functionality. The major manufacturer and generic templates include screws, nails, plates and a full library of other components. This ensures that you have the most suitable implants available during surgery.





Contouring templates

The contouring templates function can be used to plan appropriate plate shape, size, length and screw placement for pelvic surgery. This function further allows the user to add screws and holes if needed. Once complete, the newly contoured plate (on-screen or in 3D printed format) may be used as a guide to pre-bend implants before entering the operating room. This can ultimately save time and increase patient safety.

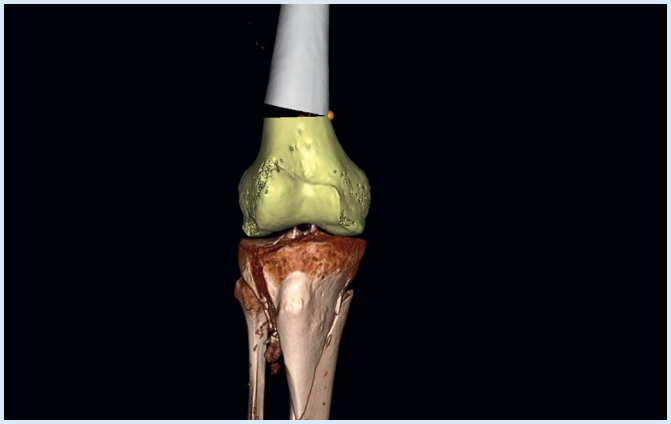


Mirror bone fragments

Mirroring can prove especially useful when a surgeon wishes to use an unaffected side as reference for fracture reconstruction.

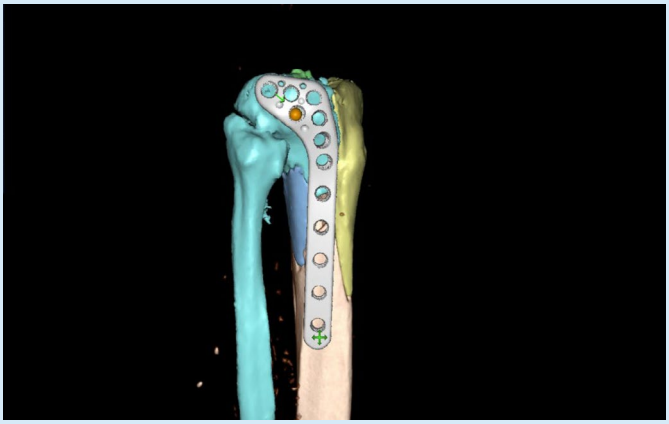
Fluroscopy mode

Fluoroscopy mode provides the surgeon with the option to mimic the fluoroscopy view most commonly used during surgery.



Split bone fragments

The split bone feature is useful when planning a surgical correction of an impacted fracture, but it can also be used for pre-operative planning of osteotomies.



Generic templating

Any 3D template can be added manually to the pre-operative plan. Correct placement can be determined quickly by using the library of supported tools. The tool set covers distance measurements as well as more complex functionality like clip plane and alignment.

Increase accuracy in joint replacement with 3D planning

Sectra's 3D joint replacement solution enables surgeons to easily plan complex arthroplasties. The 3D views and dedicated orthopaedic tools allow for increased accuracy in implant sizing, angle measurements and surgical approach. Surgeons will now be able to study the patient's anatomy, and plan for surgery, in ways that are simply not possible using today's standard 2D images. This can ultimately lead to less time in the operating room and improved surgical outcomes.

3D solution that makes a difference

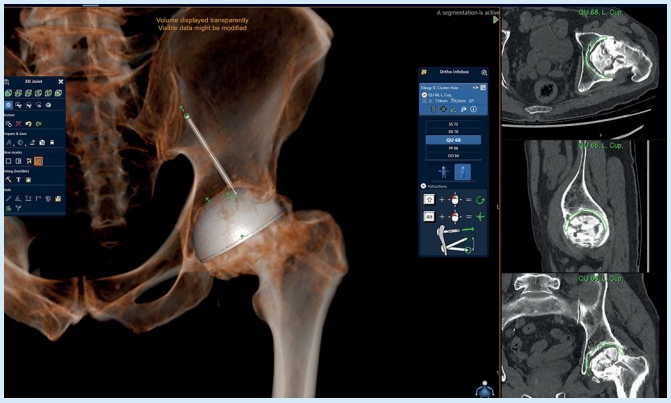
With Sectra's 3D joint replacement solution, surgeons can gain advantages that prove highly beneficial for their patients. The intuitive tools enable a quick learning curve, while template and angle me asurement functions speed up the process of planning through simultaneous use of 3D and MPR views. 3D joint planning also seamlessly removes potential calibration issues and errors, as CT data visualizes true size automatically, improving accuracy in implant selection even further.

Improved pre-operative planning for revision cases

Sectra's 3D joint replacement solution allows surgeons to temporarily hide metal while doing their pre-operative plans. This is especially beneficial for revision cases, where pre-existing implants can otherwise obscure the overall 3D plan. The segmentation and clip plane functions serve to hide bone or other structures that may additionally draw focus away from what is most important.

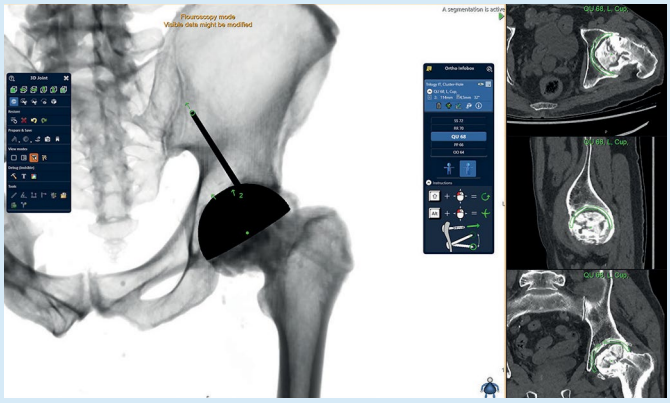
Assisted placement of hip plan components

The 3D hip guide assists the surgeon in the efficient placement of hip plan components within the 3D view. By using the available tools in the MPR views, the optimal implant position and sizing is truly possible. Automatic calculation of leg length discrepancy (LLD), as well as cup inclination and anteversion, provides another layer surgeon confidence.



Transparency mode

The transparency mode enables visualization of the planned implants, making it easier to map placement and size of acetabular cups and screws.

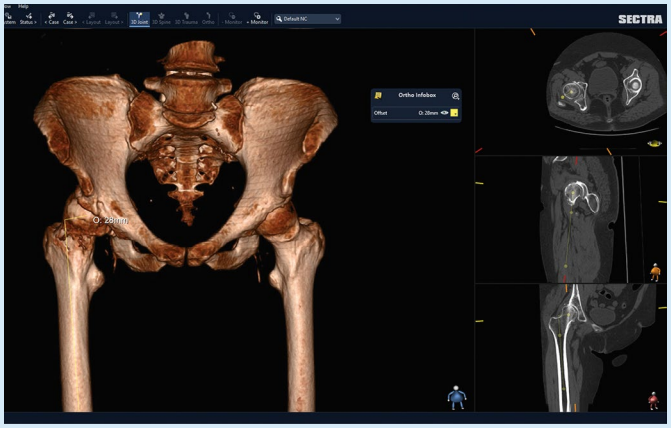


Fluoroscopy mode

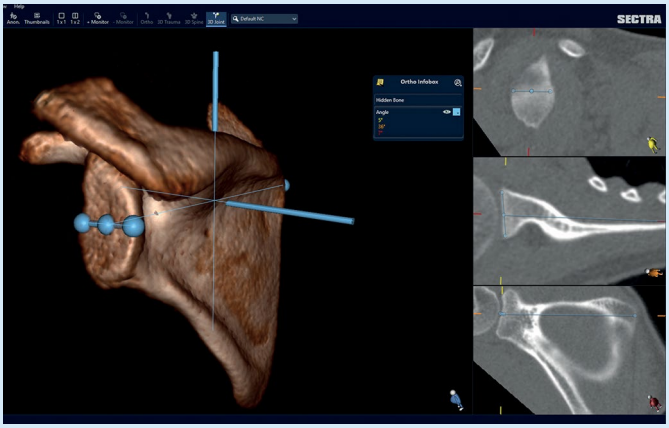
The fluoroscopy mode simulates the perioperative view most common during surgery. The view can be used as a reference when placing screws or other materials.

Measurements

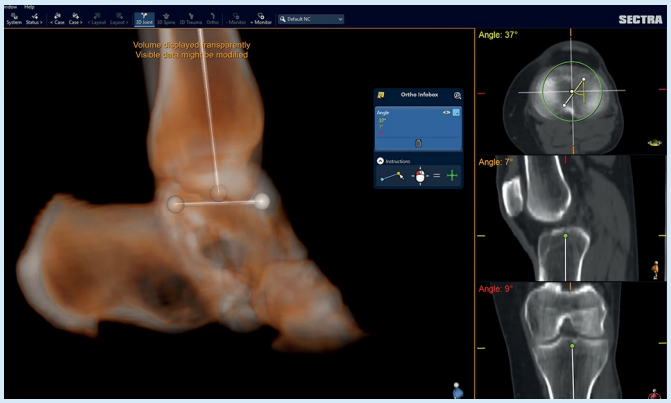
Angles, distances and offsets can be measured in 3D, while avoiding the projection errors 2D images are often subject to. This error avoidance is due to the removal of projection effects and the non-optimal patient positioning that accompanies many 2D images. When taking measurements, the surgeon can use the MPR views to fine tune the placement of each desired point.



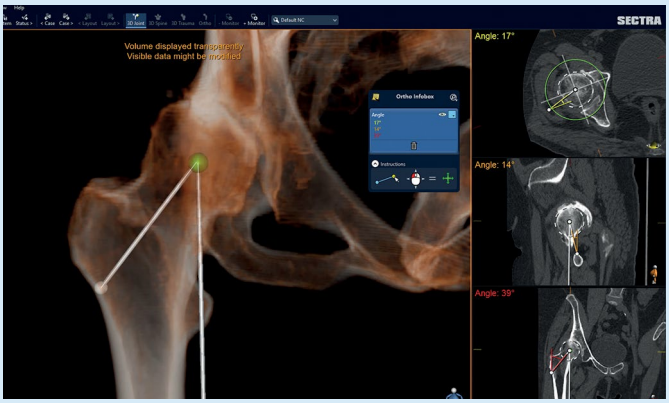
Offset



Glenoid anteversion



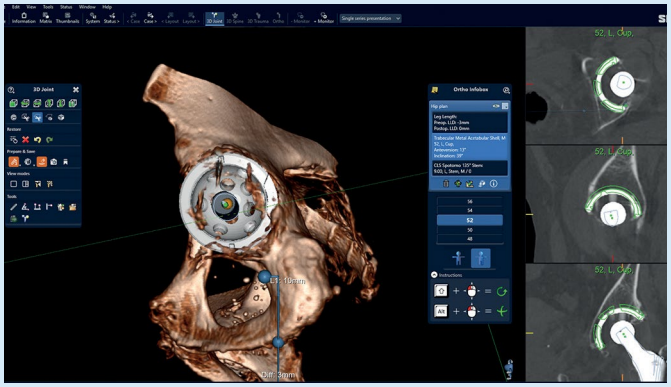
Tibial Torsion

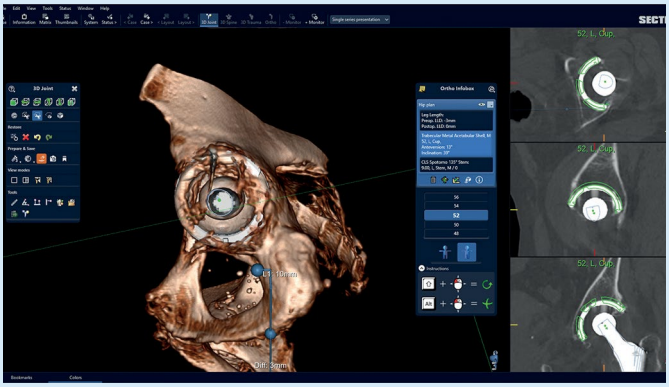


Femoral mechanical axis to neck angle

Hide metal

The 3D joint replacement solution provided by Sectra allows surgeons to temporarily hide existing metal while doing their pre-operative planning.





A useful planning system for all types of joints

The system can be used for all types of joint replacement surgery as 3D templates can be added manually and on command.

Sectra Orthopaedics AB • info.ortho@sectra.com • sectra.com/ortho

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