

Materialise OrthoView


materialise
innovators you can count on



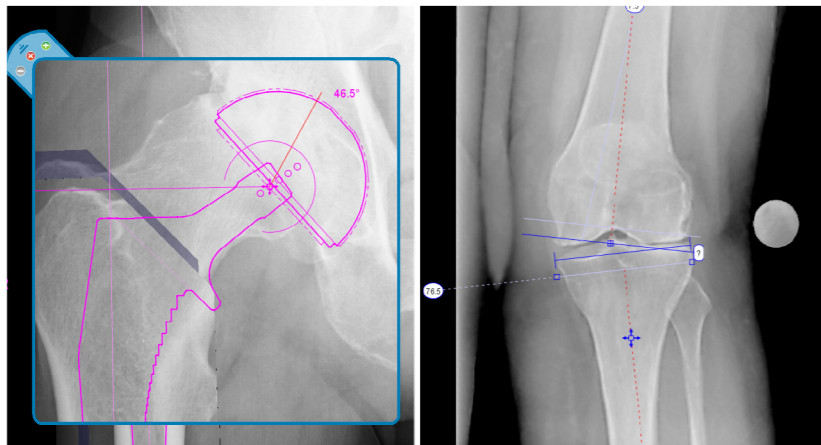
Orthopedic
Pre-operative Planning
and Templating
with Digital X-ray Images

Planning an Optimal Surgical Outcome for Each Patient

The development of Materialise OrthoView has been guided by orthopedic surgeons and their need for better digital pre-operative planning tools. Surgeons worldwide rely on Materialise OrthoView for planning hip, knee and other joint replacement procedures as well as assessing pediatric and spinal deformities and managing trauma fractures.

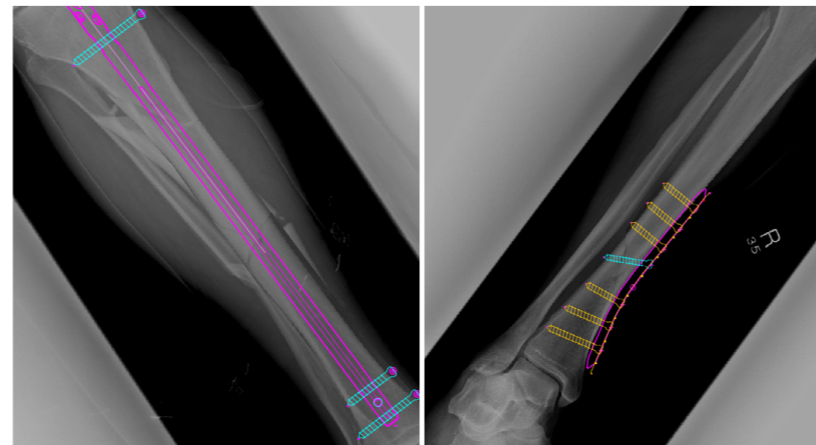
“ I plan all my cases beforehand in OrthoView so the number of decisions I need to make intra-operatively are significantly reduced. ”

Sebastian Sturridge, Orthopaedic Surgeon, UK



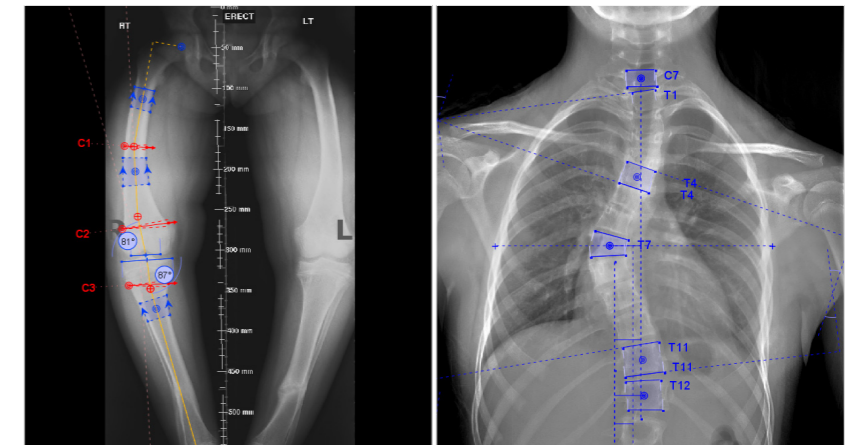
Joint Replacement

- Total Hip, Resurfacing, Hemiarthroplasty
- Total Knee, Partial Knee, HTO
- Complex revision implants
- Shoulder and small joints



Fracture Management

- Identify & reduce fragments
- Template nails, plates, DHS
- Visualise plate bending
- Smart Templates have correct screws automatically

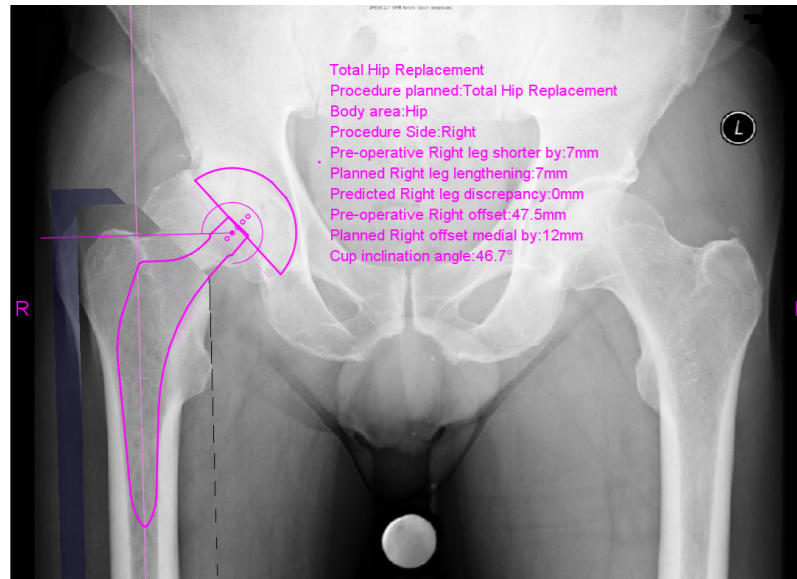


Pediatrics and Spine

- DDH Assessment
- Spinal assessment
- Limb Deformity Correction
- Osteotomy planning

Planning Hip Procedures with Materialise OrthoView

Primary Total Hip Arthroplasty

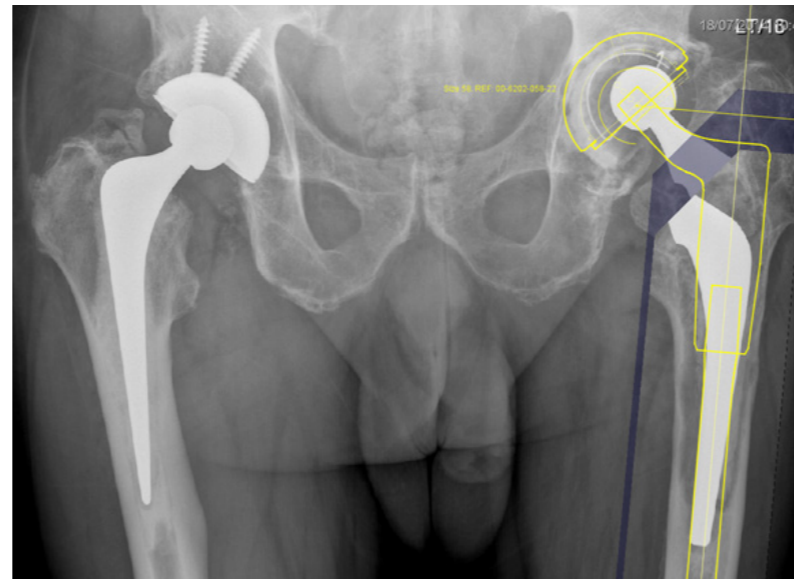


Planning a THA can take just 60 seconds with [SmartHip](#). Automatic femoral canal detection, template sizing and initial positioning, as well as a readout of predicted changes to leg length and offset, help choose the implant options that offer an optimal biomechanical outcome for the patient. On-screen reduction with a single mouse click is an additional option to aid visualization of the plan.

Femoral Resurfacing

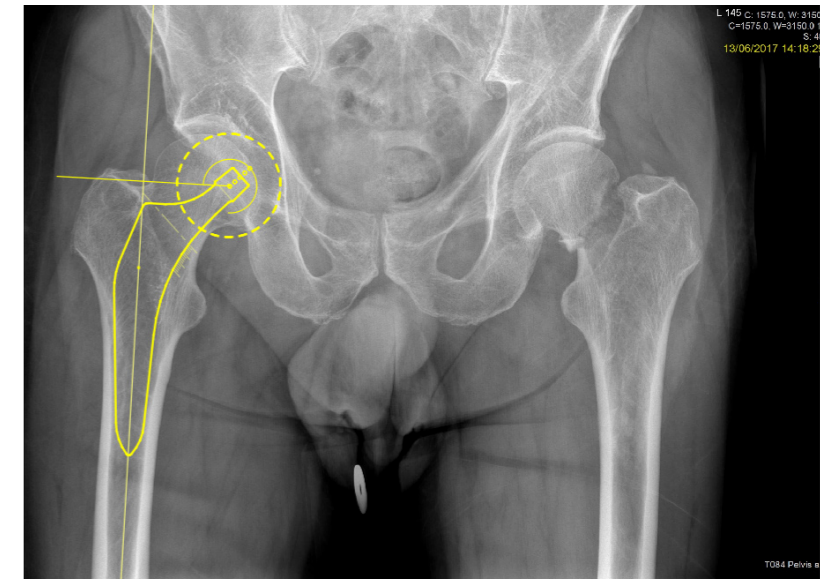
The Femoral Resurfacing wizard allows assessment of head size and neck angle and helps guide the surgeon to the correct drill approach position.

Total Hip Revision or Complex Primary



Revision arthroplasty procedures can be modelled on-screen as a connected whole. Entire assemblies are provided in template form, displaying the main components, including stem options, collars, and neck assemblies. A database built into the system's [Smart Templates](#) ensures only compatible components can be combined on-screen.

Hemiarthroplasty



Hemiarthroplasty is supported in planning with several templating options:

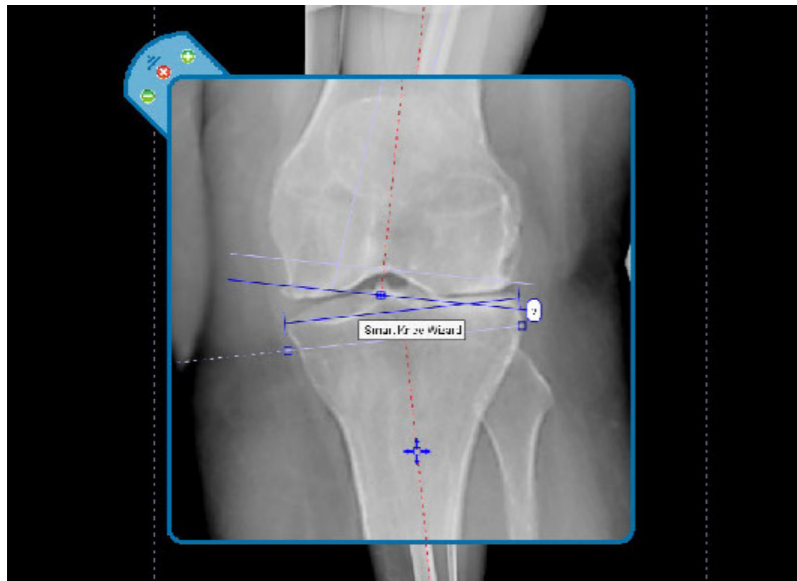
- Stems with anatomical heads
- Stems with bipolar cups
- Monoblock stems
- Planning on the contra-lateral side

“ OrthoView is extremely valuable for hips due to its accuracy in assessing the measurements that are needed to obtain the true cup and stem size for my patient. ”

Thomas Mulvey MD
Orthopedic Surgeon, Peoria, Illinois, USA

Planning Knee Procedures with Materialise OrthoView

Total Knee Arthroplasty

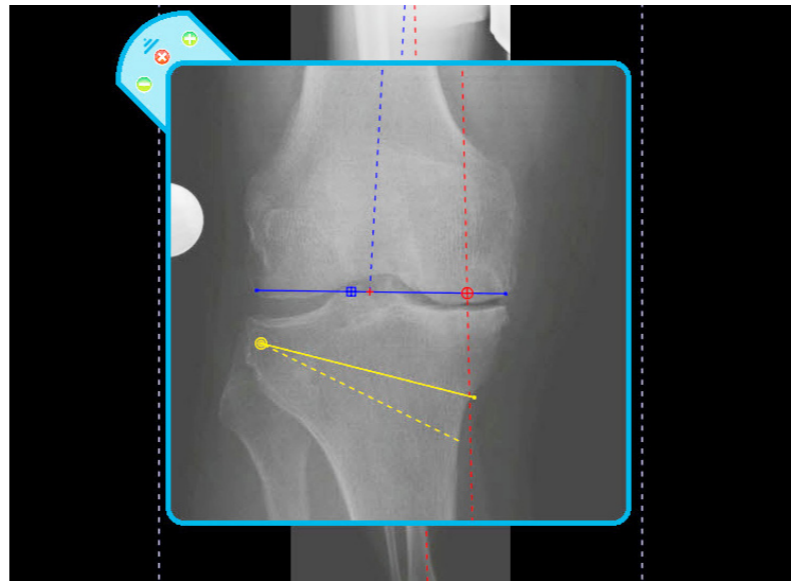


[SmartKnee](#) is a set of tools and automated wizards dedicated to knee arthroplasty planning with a minimum of mouse clicks. It incorporates automated anatomy detection, template placement and reduction and is especially useful in assessing alignment for complex primary knees and total knee revisions.

Partial Knee Replacement

The automated planning tool for unicompartmental knee surgery helps with correct implant sizing, positioning and alignment. Templates for patellofemoral and bicompartmental implants are also supported by this wizard.

High Tibial Osteotomy



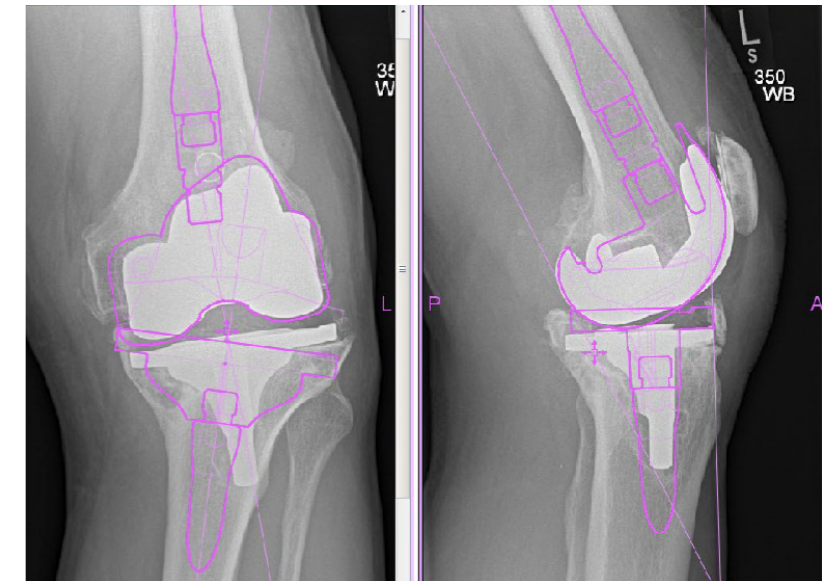
The HTO planning wizard allows you to assess the whole leg alignment to identify and analyze the initial deformity. A suitable cut angle and width can be visualised, along with a simulated post-osteotomy limb alignment. Finally, you may select the size of plate required for your patient from the Materialise OrthoView template library.

Complex Primary Knee Replacement

Materialise OrthoView can help anticipate potential complications that can arise during knee joint replacement surgery. Key questions that can be evaluated include:

- Is the misalignment caused by tibial or femoral bone loss?
- How will the arthroplasty affect leg alignment?
- Are wedges and stems required to promote a stable arthroplasty?

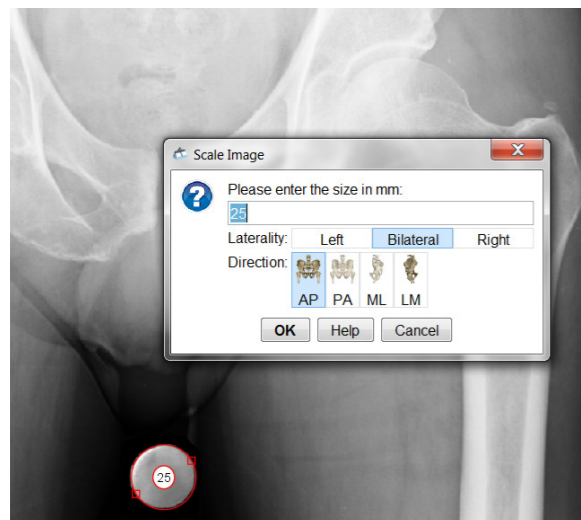
Total Knee Revision



[Revision knee templates](#) are shown as complete connected systems for repositioning on-screen as one item (the primary component plus any stems or offsets). While adjusting the primary component alignment, the effect on stem positioning and need for an offset can be seen and assessed. When an offset stem is added, a unique polar display allows you to visualize the required orientation.

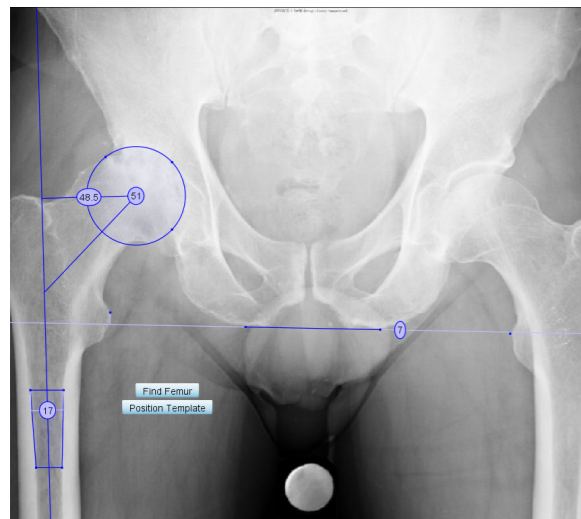
4 Simple Steps to Creating a Pre-operative Plan

1. Scale



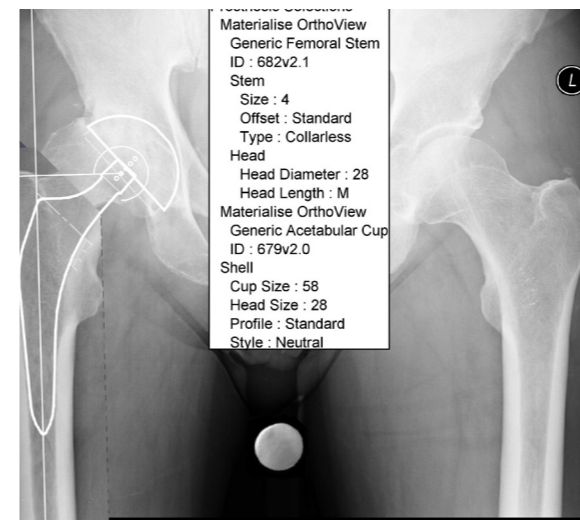
With one click of the mouse, Materialise OrthoView can identify the image magnification to assist with prosthesis template sizing, when an image scaling device or calibration object has been included in the digital X-ray (recommended). Alternatively, a known oversize percentage for the image may be entered to approximate the image magnification.

2. Analyze



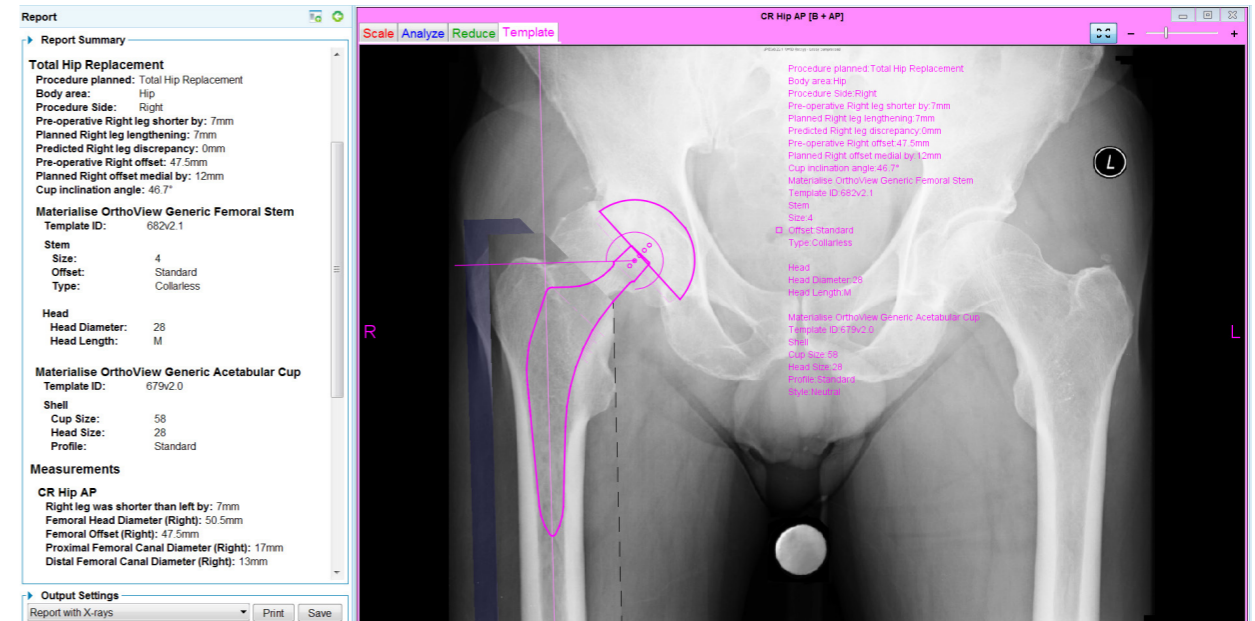
Measuring tools specific to your chosen procedure are provided. They help to position and size the prosthesis template and make key measurements with a minimum of effort.

3. Template



Prosthesis templates are grouped in families for rapid selection of the appropriate components. Smart Templates allow you to easily adjust the size and characteristics of each component on screen and plan the optimum fit for your patient.

4. Report



The completed plan, including templated images, prosthesis type and size, and key measurements, can be saved to the PACS or locally. It can also be made available for reworking or referencing during surgery and can be shared with colleagues.

Intelligent Tools for Quick and Easy Planning

The screenshot displays the Materialise OrthoView software interface for hip surgery planning. The main window shows an X-ray of a hip with a blue template overlay. The left sidebar contains various tool options like 'Wizards' and 'Generic Acetabular Cup'. The right sidebar shows a 'SmartHelp' window with an 'Acetabular Cup' section, including text and a diagram of a cup with a 46.0 degree angle.

Messages

- Pre-operative Right leg shorter by: 7mm
- Planned Right leg lengthening: 7mm
- Predicted Right leg discrepancy: 0.5mm
- Pre-operative Right offset: 47.5mm
- Planned Right offset medial by: 12mm
- Cup inclination angle: 46.0°

Acetabular Cup

The acetabular cup prosthesis can be positioned to either correct any determined leg length discrepancy or be concentric with the acetabular socket as pre-set in [Preferences](#).

If the [SmartHip](#) or the [Transischial Line](#) Wizards are positioned, a Cup Inclination Angle meter appears on the end of the red rotation line on the acetabular cup in the Templating screen.

Making the line longer allows the meter to be positioned outside of the cup graphic. All changes are reflected in the Messages box.

More Help topics

- [Template Panel\(Orthopaedics\)](#)
- [Aligning Template](#)
- [Plate Bending](#)
- [Knee Templating](#)
- [Revision Knee Femoral Stems](#)
- [Revision Knee Tibial Stems](#)

// The more thought that is put into planning the procedures before surgery, the quicker and more accurate the surgery will be. //

Ron James, Orthopedic Surgeon,
Mercy Medical Group, Sacramento, USA

Intelligent Tools for Quick and Easy Planning

SmartHip

Plan a Total Hip Arthroplasty in less than 60 seconds with automatic femoral canal detection, template sizing and initial positioning. Materialise OrthoView's SmartHip wizard and Smart Templates together make it easy to see the effect that the choice of template position, size, neck angle and other features will have on leg length difference and femoral offset.

Acetabular Cup

The acetabular cup prosthesis can be positioned to either correct any determined leg length discrepancy or be concentric with the acetabular socket as pre-set in [Preferences](#).

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- [Revision Knee Tibial Stems](#)

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Intelligent Tools for Quick and Easy Planning

Intuitive Planning Wizards

The automated anatomical measuring tools are designed to streamline and speed up the planning process. There are over sixty automated planning wizards in Materialise OrthoView, each of which is designed to measure the anatomy and demonstrate, in line with real world surgical techniques, how adjustments to the plan may affect the outcome.

Intelligent Tools for Quick and Easy Planning

The screenshot displays the Materialise OrthoView software interface for hip replacement planning. The main window shows an X-ray of a hip joint with a 'Smart Templates' overlay. The interface is divided into several panels:

- Template Panel (Left):** Contains a 'Total Hip Replacement (R)' section with 'Wizards' (SmartHip Wizard, Transischial Line Wizard, Hip Joint AP/PA Wizard, Femoral Neck Angle Wizard, Neck Cut Guide, Charnley Neck Cut Guide, Collared Neck Cut Guide) and 'Generic Acetabular Cup' and 'Generic Femoral Stem' sections with 'Materialise OrthoView' and 'Generic' options. A 'Messages' section at the bottom provides key data: Pre-operative Right leg shorter by: 7mm, Planned Right leg lengthening: 7mm, Predicted Right leg discrepancy: 0.5mm, Pre-operative Right offset: 47.5mm, Planned Right offset medial by: 12mm, Cup inclination angle: 46.0°.
- Central View:** Shows an X-ray of the hip joint with a 'Smart Templates' overlay. A black box with the text 'Smart Templates' is overlaid on the X-ray. A blue box highlights the 'Smart Templates' overlay. A blue line with a circled '7' indicates a lengthening measurement.
- SmartHelp Panel (Right):** Provides detailed instructions for the 'Acetabular Cup' alignment. It states: 'The acetabular cup prosthesis can be positioned to either correct any determined leg length discrepancy or be concentric with the acetabular socket as pre-set in Preferences.' It also mentions: 'If the SmartHip or the Transischial Line Wizards are positioned, a Cup Inclination Angle meter appears on the end of the red rotation line on the acetabular cup in the Templating screen.' A graphic shows a pink acetabular cup with a red line and a '46.0°' angle. A note says: 'Making the line longer allows the meter to be positioned outside of the cup graphic. All changes are reflected in the Messages box.'

The extensive template library provides instant access to high quality, intuitive, prosthesis templates. They are grouped according to size and other characteristics, for ease of selection, and only viable, real-world component matches are permitted. Size adjustments in one image are replicated in all projections when more than one x-ray is viewed. It is also easier to compare alternative choices, as the selected template appears on the image in the planned position.

Intelligent Tools for Quick and Easy Planning

File Panel Image Window Help

Examination Notes Report Restart

Template

Total Hip Replacement (R)

Ipsilateral Reduce

Wizards

- SmartHip Wizard
- Transischial Line Wizard
- Hip Joint AP/PA Wizard
- Femoral Neck Angle Wizard
- Neck Cut Guide
- Charnley Neck Cut Guide
- Collared Neck Cut Guide

Generic Acetabular Cup

Materialise OrthoView

Generic Acetabular Cup

Alignment: To Wizard

Cup Size: 58 Head Size: 28 Profile: Standard Style: Neutral

Generic Femoral Stem

Materialise OrthoView

Generic Femoral Stem

Alignment: To Wizard

Size: Head Diameter

Offset: Head Length

Tune:

Messages

- Pre-operative Right leg shorter by: 7mm
- Planned Right leg lengthening: 7mm
- Predicted Right leg discrepancy: 0.5mm
- Pre-operative Right offset: 47.5mm
- Planned Right offset medial by: 12mm
- Cup inclination angle: 46.0°

CR Hip AP [B + AP]

Scale Analyze Reduce Template

Save Commit Close

SmartHelp

Contents > Orthopaedics Panels > Template Panel(Orthopaedics) > Templates (Aligning)

Acetabular Cup

The acetabular cup prosthesis can be positioned to either correct any determined leg length discrepancy or be concentric with the acetabular socket as pre-set in [Preferences](#).

If the [SmartHip](#) or the [Transischial Line](#) Wizards are positioned, a Cup Inclination Angle meter appears on the end of the red rotation line on the acetabular cup in the Templating screen.

When a magnified view is required, Blue Lens can be turned on or off with your keyboard's spacebar to provide an instant, precision close-up of the area of interest. The box can be adjusted for size and magnification and moved around the screen as required. Blue Lens allows you to continue working on your plan within the magnified area. Blue Lens is just one of the zoom and other image manipulation features available within Materialise OrthoView.

SmartZoom

46.0°

More Help topics

- [Template Panel\(Orthopaedics\)](#)
- [Aligning Template](#)
- [Plate Bending](#)
- [Knee Templating](#)
- [Revision Knee Femoral Stems](#)
- [Revision Knee Tibial Stems](#)

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Intelligent Tools for Quick and Easy Planning

The screenshot displays the OrthoView software interface for hip templating. The main window shows an AP view of a hip with a blue acetabular cup template overlaid. A yellow circle and a blue line are used for scaling. The left sidebar contains 'Wizards' and 'Generic Acetabular Cup' settings. The bottom left shows a 'Messages' box with leg length and offset data. The right sidebar has a 'SmartHelp' panel for the 'Acetabular Cup'.

Messages:

- Pre-operative Right leg shorter by: 7mm
- Planned Right leg lengthening: 7mm
- Predicted Right leg discrepancy: 0.5mm
- Pre-operative Right offset: 47.5mm
- Planned Right offset medial by: 12mm
- Cup inclination angle: 46.0°

SmartHelp - Acetabular Cup:

The acetabular cup prosthesis can be positioned to either correct any determined leg length discrepancy or be concentric with the acetabular socket as pre-set in [Preferences](#).

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More Help topics:

- [Template Panel\(Orthopaedics\)](#)
- [Aligning Template](#)
- [Plate Bending](#)
- [Knee Templating](#)
- [Revision Knee Femoral Stems](#)
- [Revision Knee Tibial Stems](#)

QuickScale

One-click image scaling instantly corrects for image magnification when a calibration marker is present on the image and correctly positioned in relation to the bone of interest. Any size or shape of marker of known length or diameter can be used to scale an image in OrthoView. Alternatively, a known oversize percentage can be entered.

Intelligent Tools for Quick and Easy Planning

File Panel Image Window Help

Examination Notes Report Restart

Scale Analyze Reduce Template

CR Hip AP [B + AP]

Save Commit Close

SmartHelp

Contents > Orthopaedics Panels > Template

Panel(Orthopaedics) > Templates (Aligning)

Acetabular Cup

SmartHelp

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The click-on-click-off guide tracks your progress through each planning stage in Materialise OrthoView. SmartHelp provides relevant reminders and tips for the wizards and measuring tools specific to your chosen procedure and can be detached and repositioned on the screen as required.

What's new in Materialise OrthoView?

Materialise OrthoView is designed to save time in surgery by allowing the key decisions to be made in advance and this is the key focus of every new development of the software. The latest version of Materialise OrthoView is Version 7*, which includes a range of additional options to improve and streamline your pre-surgical templating, including:

Automatic Template Updates

Direct access to the full range of up-to-date prosthesis templates without the need for manual download.

Case Management

Collaborate on specific cases and share them via the Cloud. The service allows Orthopedic surgeons to upload and organise images and plans into cases in order to share them in a secure way.

OrthoView Live

Plan and template with Materialise OrthoView software via a named account accessed online. This feature is available to named surgeons on the OrthoView Hospital plan and to individual surgeons on a subscription basis.

OrthoView Mobile Viewer

View, discuss and refer to your surgical plan with your patient or intraoperatively on your mobile device.

Cup Anteversion wizard

This automated tool measures the true and planar anteversion of an acetabular cup.

➤ **Your Materialise Account Manager will discuss your digital pre-operative planning requirements with you in order to identify which of these features are available.**



“ Digital pre-operative planning with OrthoView allows surgeons to recreate the normal biomechanics of our patients’ hips. It precedes every case I perform. ”

Ross Barker,
Orthopaedic Consultant, Nobles Hospital, Isle of Man

*As of October 2017. Availability may vary according to which PACS system you have.

For more information visit: www.materialise.com/orthoview

Find Out More!

For more information about Materialise OrthoView, our partners and additional materials,

visit www.materialise.com/orthoview

where you can also request a trial license to evaluate the software.

You can also contact us on orthoview@materialise.com

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the latest version of
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You will find additional materials, video tutorials and FAQs

on our [website](http://www.materialise.com) or you can email orthoview@materialise.com with your query.

PATENT NOTICE

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