

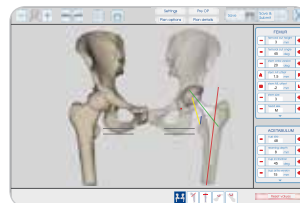
## MYHIP WORKFLOW



**1.** Medacta receives the CT images of the patient's leg.



**2.** A virtual position of the implant is proposed to the surgeon who can modify the planning as he wishes.



**3.** Starting from the 3D reconstruction of the joint and following the surgeon preferences the MyHip preoperative planning is performed.



**4.** Once the planning has been validated by the surgeon, the in-house manufacturing process starts.

## LEADER IN PATIENT MATCHED TECHNOLOGY



[myhip.medacta.com](http://myhip.medacta.com)

## REFERENCES

[1] Lewinnek GE, Lewis JL, Tarr R, Compere CL, Zimmerman JR. Dislocations after total hip replacement arthroplasties. J bone joint Surg Am. 1978;60:217-220. [2] Nishii T, Sugano N, Miki H, Koyama T, Takao M, Yoshikawa H. Influence of component positions on dislocation: computed tomographic evaluations in a consecutive series of total hip arthroplasty. J Arthroplasty. 2004;19:162-166. [3] Röder C, Vogel R, Burri I, Dietrich D, Staub LP. Total hip arthroplasty: leg length inequality impairs functional outcomes and patient satisfaction. BMC Musculoskeletal Disorders. 2012; 13:95. [4] Austin MS, Hozack WJ, Sharkey PF, Rothman RH. Stability and leg length equality in Total Hip Arthroplasty. J Arthroplasty. 2003; 18(3 suppl 1):88-90. [5] Cassidy KA, Noticewala MS, Macaulay W, Lee JH, Geller JA. Effect of femoral offset on pain and function after total hip arthroplasty. J Arthroplasty. 2012; 27(10):1863-1869. [6] Wan Z, Boutary M et al. The influence of acetabular component position on Wear in THA. J Arthroplasty. 2008 Jan;23(1):51-6. [7] D'Lima DD, Urquhart AG, Buehler KO, et al. The effect of the orientation of the acetabular and femoral components on the range of motion of the hip at different head-neck ratios. J Bone Joint Surg Am. 2000 Mar;82(3):315-21. [8] Müller ME. Total hip replacement: planning, technique and complications. In: Surgical management of degenerative arthritis of the lower limb. Philadelphia: Lea and Faber, 1975:90-113. [9] Müller ME. Lessons of 30 years of total hip arthroplasty. Clin Orthop 1992;274:12-21. [10] Sariali E, Moutet A, Pasquier G, Durante E, Catone Y. Accuracy of reconstruction of the hip using computerised three-dimensional preoperative planning and a cementless modular neck. J Bone Joint Surg [Br] 2009;91-B:333-40. [11] Sariali E, Mauprivez R, Khiami F, Pascal-Mousellard H, Catonné Y. Accuracy of the preoperative planning for cementless total hip arthroplasty. A randomised comparison between three-dimensional computerised planning and conventional templating. Orthop Traumatol Surg Res. 2012 Apr;98(2):151-8. [12] Small T, Krebs V, Molloy R, Bryan J. Comparison of Acetabular Shell Position Using Patient Specific Instruments vs. Standard Surgical Instruments: A Randomized Clinical Trial. J Arthroplasty. 2013 Oct 16. [13] Buller L, Smith T, Bryan J, Kilka A, Barsom W. The use of patient-specific instrumentation improves the accuracy of acetabular component placement. J Arthroplasty. 2013 Apr;28(4):631-6. [14] Hananouchi T, Saito M, Koyama T, Sugano N, Yoshikawa H. Tailor-made Surgical Guide Reduces Incidence of Outliers of Cup Placement. Clin Orthop Relat Res. 2010 Apr;468(4):1088-95. [15] 15-Charbonnier C, Schmid J. Pelvic tilting. Artanim Internal Report, 2013. [16] Wolf A, Digioia 3rd AM, Mor AB, Jaramaz B. Cup alignment error model for total hip arthroplasty. ClinOrthopRelat Res. 2005 Aug;437:132-7. [17] Alfatato S, Traina F, Mazzega-Fabbro C, Sergio V, Viceconti M. Is ceramic-on-ceramic squeaking phenomenon reproducible in vitro? A long-term simulator study under severe conditions. J Biomed Mater Res B Appl Biomater. 2009 Oct;91(11):264-71. [18] De Haan R, Campbell PA, Su EP, De Smet KA. Revision of metal-on-metal resurfacing arthroplasty of the hip: the influence of malpositioning of the components. J Bone Joint Surg [Br] 90:1158-1163.

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made



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## PRECISION ON DEMAND

Continuing challenges in Total Hip Replacement (THR) include:

- Dislocation prevention<sup>[1,2]</sup>
- Leg length discrepancy assessment<sup>[3,4]</sup>
- Femoral offset restoration<sup>[5]</sup>
- Cup positioning to avoid edge loading<sup>[6]</sup>
- Impingement analysis<sup>[7]</sup>
- Range of Motion assessment<sup>[7]</sup>

Medacta designed the MyHip to address these issues, focusing on patient well-being and improving **accuracy in implant positioning and sizing**, through:

- Precise **3D preoperative planning**<sup>[8,9]</sup> which can halve the number of alignment outliers when compared to 2D templating.<sup>[10,11]</sup>
- **Patient-specific guides**<sup>[12,13,14]</sup> which can reproduce the 3D preoperative plan.

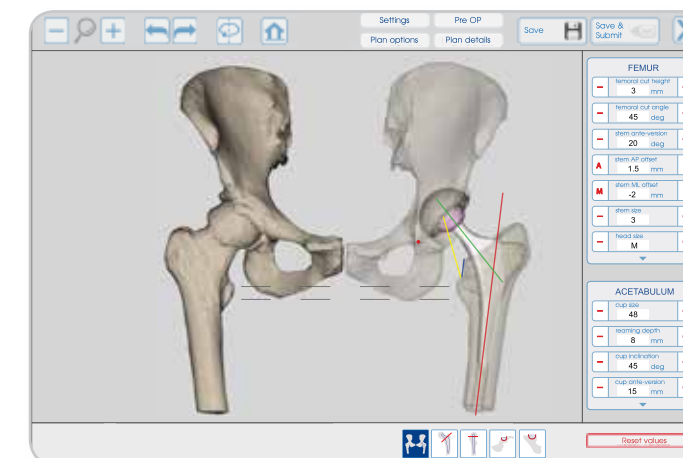
**MyHip is a system providing 3D preoperative planning and patient-specific guides, developed following the success of Medacta Patient Matched Technology**



## COMPLETE 3D PREOPERATIVE PLANNING

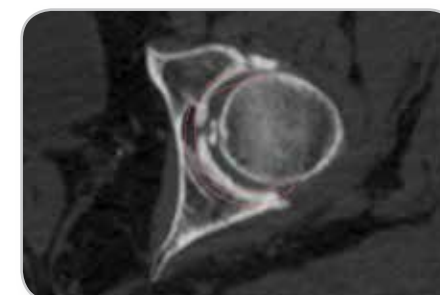
The MyHip 3D preoperative planning is based on the surgeon's specific preferences and patient's anatomy, and submitted to the surgeon for approval through an **interactive website** available at

<https://myhip.medacta.com>

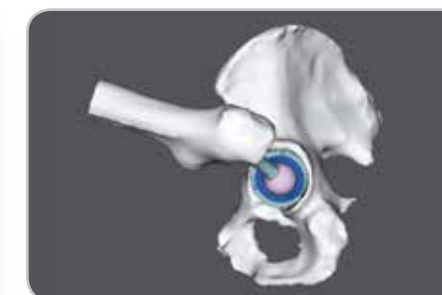
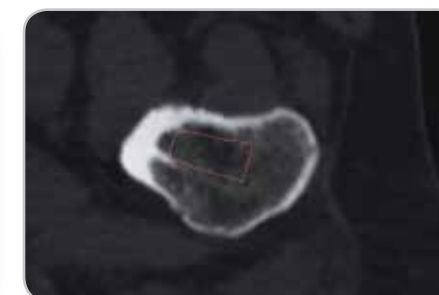


The 3D preoperative planning considers all the standard parameters used in the THR practice. Special features are:

- **Patient pelvic tilt** assessed through a validated image processing protocol<sup>[15]</sup>, which combines CT and X-Ray imaging. Considering pelvic tilt minimises the risk of inaccurate implant positioning<sup>[16]</sup>.
- **Three-dimensional kinematic simulation of the hip ROM**, to effectively predict the performance of the in vivo implants. This allows to minimise the risk of impingement, squeaking with ceramic-on-ceramic bearing<sup>[17]</sup> and edge loading<sup>[18]</sup> during the patient's daily activity.



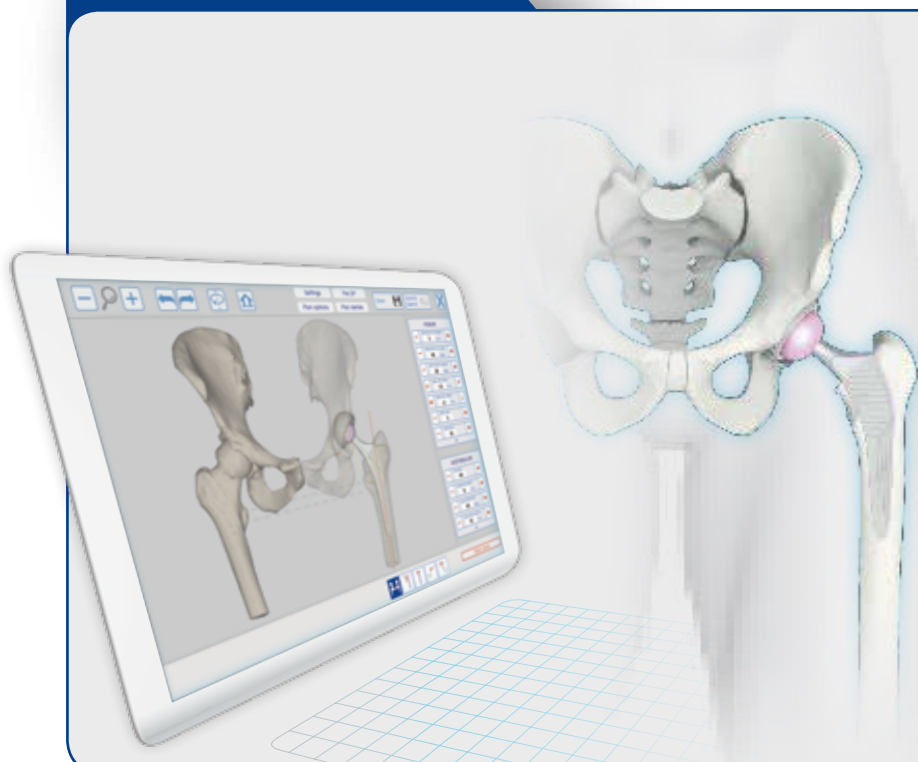
Implant positioning simulated on the original CT



3D kinematic simulation

Following surgeon approval of the 3D preoperative plan, MyHip guides are produced.

## WHY MYHIP?



- **Accurate implant positioning and sizing**
- **Complete 3D preoperative planning** with 3D kinematic simulation, which considers pelvic tilt
- **Complete in-house technology** the MyHip process is entirely performed by Medacta
- **A personal MyHip technician just for you**
- **Only 3 weeks lead time** the shortest delivery time in today's market for this technology

## MYHIP GUIDES

MyHip guides are designed to accurately reproduce the surgeon's preoperative plan. MyHip guides are:

- Available for both femur and acetabulum
- Unaffected by intraoperative patient movement
- Positioned unambiguously on the bone
- Available for any preferred approach

**ANTERIOR  
FEMORAL GUIDE**

**POSTERIOR  
FEMORAL GUIDE**

