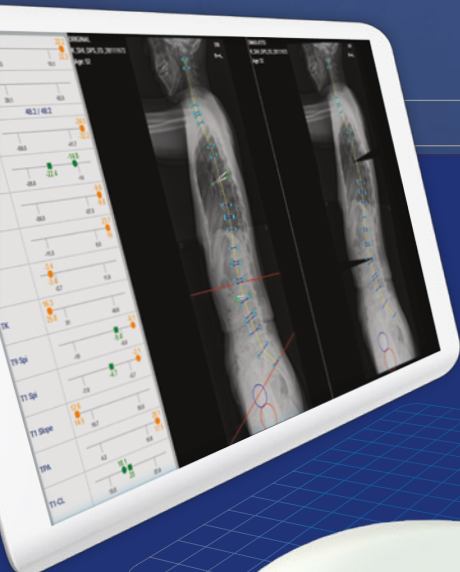




MySpine[®] OPTIMIZER

UNIQUE ANATOMIES, PATIENT-MATCHED SOLUTIONS



Brochure

Joint

Spine



MySpine Optimizer is a **preoperative planning software** designed to help surgeons view, store, and measure radiological images. It also supports precise **planning for the placement of spinal fixation and fusion devices** using advanced MySpine technology.

MySpine Optimizer is part of the **MySolutions Personalized Ecosystem**, a network of advanced digital solutions developed to provide greater accuracy thus helping to improve patient satisfaction and health system efficiency, adding value to the entire care pathway.

MySpine Optimizer offers **several key advantages**:

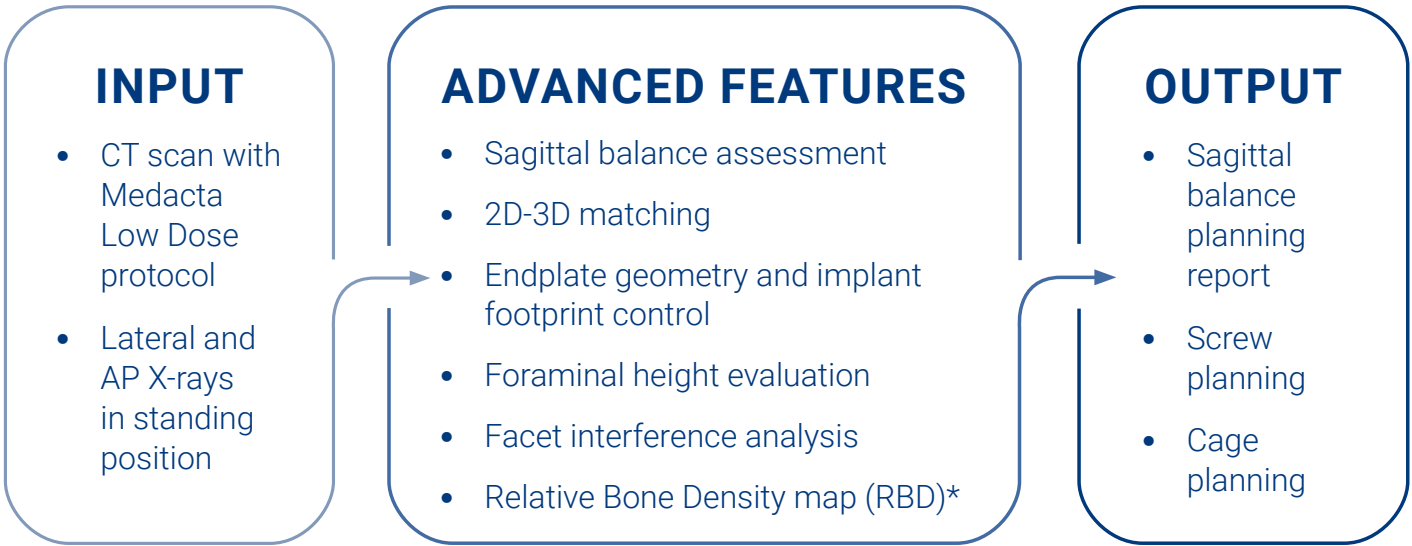
PATIENT BENEFITS

- **Potentially fewer complications:** Bone density and foraminal height analysis may help reduce surgical risks, potentially enhancing patient safety.
- **Optimized surgical time:** Pre-op 3D planning minimizes intraoperative decisional time.^[1]
- **Personalized solution:** The 3D planning tool is designed to achieve desired sagittal balance by allowing for adjustment of implant dimensions.

SURGEON BENEFITS

- **More confidence & less stress:** Detailed pre-planning tools boost surgeon confidence.^[2]
- **Streamlined planning:** MySpine Optimizer simplifies pre-op implant selection based on patient anatomy and needs.
- **Marketing tool:** Highlights personalized, patient-centered care to build trust.

MySpine Optimizer features a lean and effective workflow to help surgeons easily plan the desired sagittal balance correction and optimize implant selection.

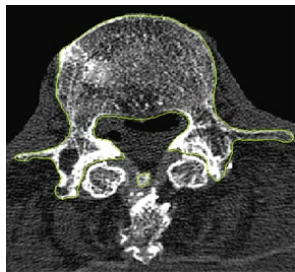


INPUT

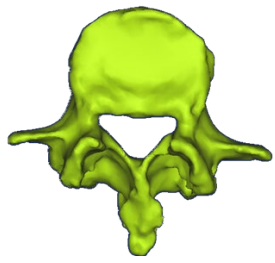
MySpine Optimizer is designed to streamline the preoperative process by integrating patient-specific imaging and data into a centralized platform, enabling precise planning and personalized surgical strategies.

Input Requirements:

- **Low Dose CT Protocol** (0.9 - 2.5 mSv) developed by Medacta.^[3] The protocol ensures safe image acquisition, reducing the amount of irradiation absorbed by the patient.^[4] It is simple to implement, making it accessible to radiology technicians. A 3D reconstruction of the patient's anatomy is obtained from low dose CT scan.
- **Lateral and AP X-rays in a standing position** are essential for cage planning and sagittal balance assessment.



CT BASED SEGMENTATION



3D ANATOMY



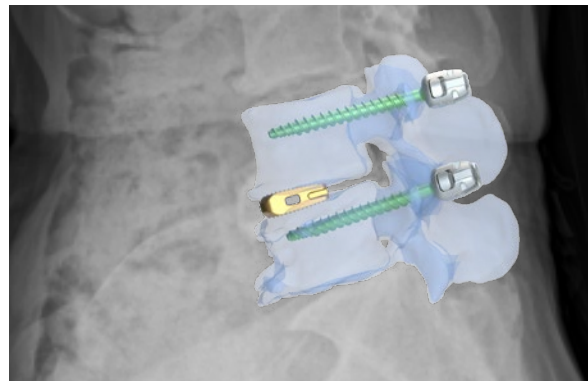
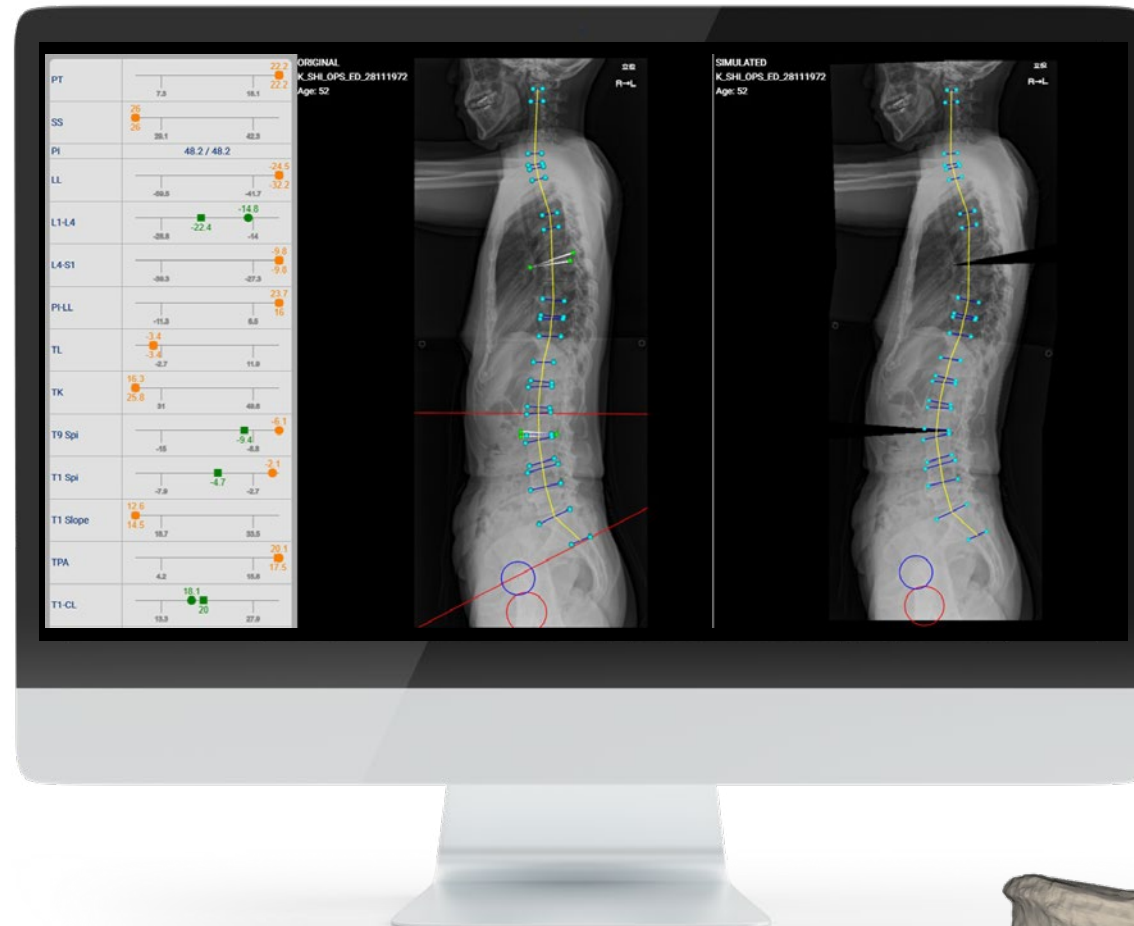
MySpine Optimizer offers easy access to **patient information** and **case history** through the **MySolutions platform**, with ongoing support from MySpine engineers.

MYSPINE OPTIMIZER ADVANCED FEATURES

MySpine Optimizer integrates advanced features to **personalize every step of the planning phase**, from anatomical assessments to implant selection and alignment simulations. All these features are **controlled by the surgeon** to achieve the desired plan.

SAGITTAL BALANCE ASSESSMENT

The **sagittal balance tool** visually simulates sagittal alignment correction by **adjusting vertebral angles** and **restoring disc space** based on the selected cage shape and size. It also supports vertebral osteotomy planning, offering the ability to **simulate the insertion of a wedge** to correct alignment. The tool automatically calculates key **anatomical parameters** to evaluate the desired restoration.



2D-3D MATCHING

The **2D-3D matching** superimposes the CT-based 3D model of the treated vertebrae on the 2D X-ray of the spine. This enables surgeons to **assess the spatial relationship between anatomical structures**, offering a clear and detailed visualization of the patient's spinal anatomy.

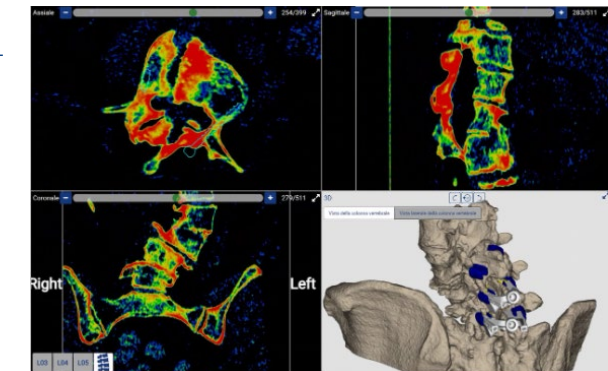
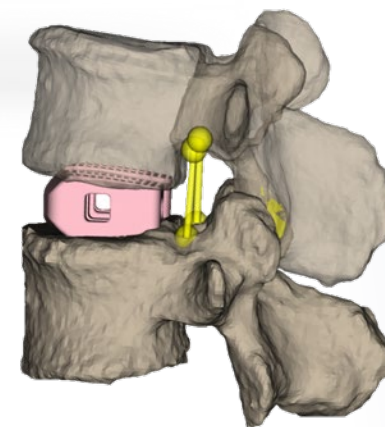


ENDPLATE GEOMETRY AND IMPLANT FOOTPRINT CONTROL

By showing each **vertebral endplate geometry** and **implant's footprint**, MySpine Optimizer aids in **choosing the right implants**, including screws and cages. It also offers a preview of the proper rod length, supporting better planning for spinal surgery.

FORAMINAL HEIGHT EVALUATION

The **foraminal height** represents the vertical dimension of the neural foramina, helping to identify potential nerve compression. The application displays this **measurement both before and after simulated cage insertion**, providing insights for surgical planning.



RELATIVE BONE DENSITY MAP VIEW

The **relative bone density (RBD)*** visualization enables surgeons to **assess the cortical and cancellous bone quality** of each vertebra, which is crucial for optimizing implant placement and potentially reducing the risk of failure.

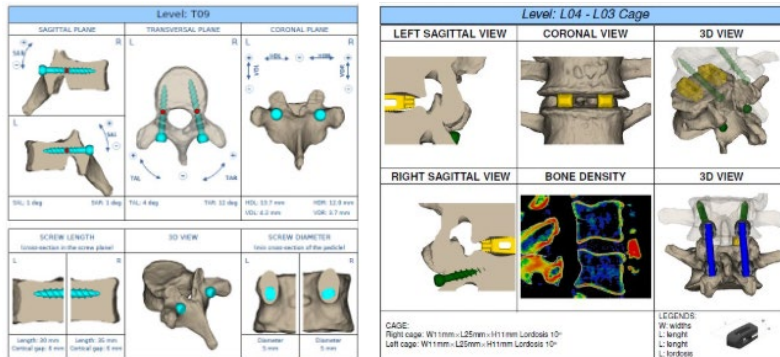


FACET INTERFERENCE ANALYSIS

Based on the planned cage simulation, the 3D vertebrae model can reveal potential **interferences in the facet and spinous process areas**. MySpine Optimizer highlights these **impingement regions**, which is useful for understanding the possible consequences on the spine's behavior with the planned implants.

OUTPUT

MySpine Optimizer provides both an **online and PDF version of the planning report**. It summarizes key information such as implant features, screw entry points and trajectories, cage positioning, anatomical parameters before and after sagittal balance restoration, and rod length indication.



SYNERGY

MySpine patient-specific 3D-printed guides enable precise execution to replicate the preoperative plan.^[5,6]



A network of advanced digital solutions designed to improve patient outcomes and healthcare efficiency

Medacta's MySolutions Personalized Ecosystem is designed around the patient's needs and expectations, in collaboration with an international network of expert surgeons, with the aim of delivering value throughout the entire patient journey.

Advanced 3D planning is at the core of our platform, followed by highly accurate execution tools such as patient-matched surgical guides, as well as an augmented-reality-based surgical platform and verification software. Medacta has created a pathway to improve patients' surgical experience and support them during the continuum of care.

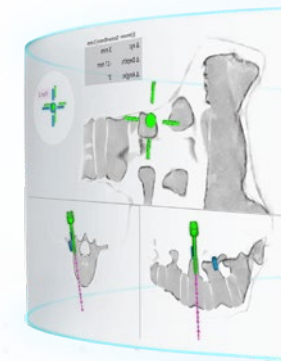
Leverage Medacta's surgeon experience with our personalized **3D planning tool**. The preoperative planning software offers solutions to accurately plan even the most challenging case.

Provide **complete and precise pre- and intraoperative guidance** for screw placement, allowing surgeons a personalized approach based on each **patient's unique anatomy**.

Surgeon's procedural workflow can be seamlessly integrated with Medacta's personalized enabling technology.

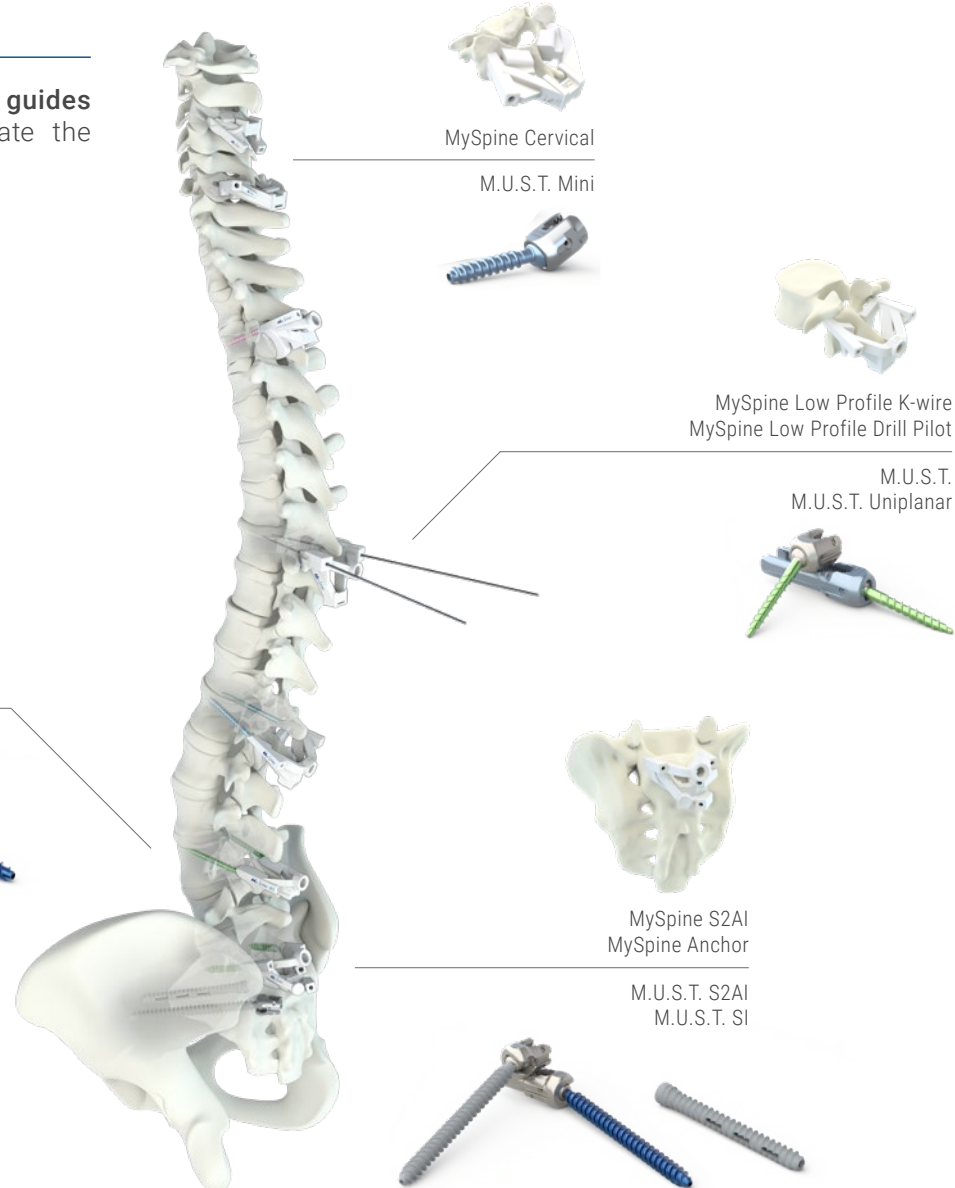
The **learning curve** can be limited to a few cases with the support of tailored **high-level educational pathways**. With the **M.O.R.E. Institute**, the surgeon is never alone when discovering new technologies.

Limited capital investment required.



MySpine MC

M.U.S.T. MC



MySpine Cervical

M.U.S.T. Mini

MySpine Low Profile K-wire
MySpine Low Profile Drill Pilot

M.U.S.T.
M.U.S.T. Uniplanar

MySpine S2A
MySpine Anchor

M.U.S.T. S2A
M.U.S.T. S



REDEFINING BETTER IN ORTHOPAEDICS AND SPINE SURGERY

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For all indications, contraindications, warnings, precautions, and potential adverse effects of the product presented, see the instructions for use or contact your local representative. For additional product information, visit www.medacta.com.

* The RBD map is a visualization tool that provides only qualitative information and should not be used for diagnostic purposes.

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Brochure

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References: [1] Lopez CD et al., Three-Dimensional Printing for Preoperative Planning and Pedicle Screw Placement in Adult Spinal Deformity: A Systematic Review, *Global Spine Journal*, 2020. [2] Kadil A. et al., The effects of surgeon-made preoperative three-dimensional multiplanar reformatting on surgeon's anxiety in spinal surgery, *J Turk Spinal Surg*, 2022. [3] Data on file, Medacta International SA. [4] Matsukawa K. et al., Comparison of safety and perioperative outcomes between patient-specific template-guided and fluoroscopic-assisted freehand lumbar screw placement using cortical bone trajectory technique, *Global Spine Journal*, 2022. [5] Van Royen B. et al., Accuracy assessment of pedicle screw insertion with patient specific 3D-printed guides through superimpose CT-analysis in thoracolumbar spinal deformity surgery, *European Spine Journal* 2021. [6] Cecchinato R. et al., Pedicle screw insertion with patient-specific 3D-printed guides based on low-dose CT scan is more accurate than free-hand technique in spine deformity patients: a prospective, randomized clinical trial, *European Spine Journal* 2019.