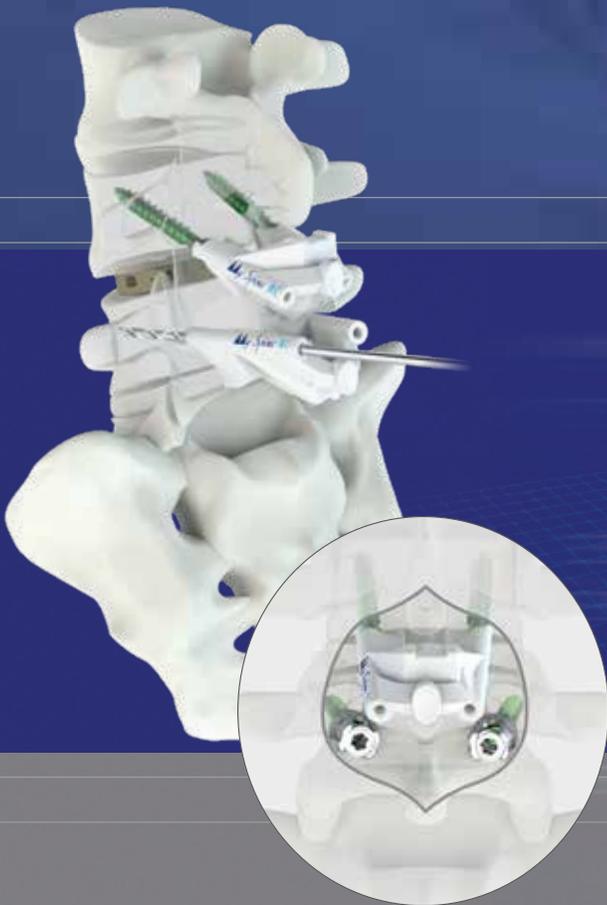


 *MySpine*® MC

PATIENT MATCHED TECHNOLOGY  
IN SPINE SURGERY

MINIMALLY INVASIVE PATIENT-MATCHED SOLUTIONS



Brochure

Joint

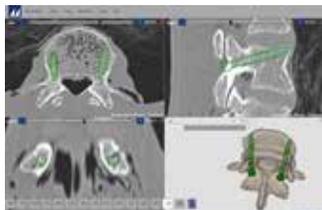
**Spine**

Sports Med

## COMPLETE NAVIGATION PLATFORM

The MySpine navigation platform combines pre-operative planning, intra-operative navigation, and spinal hardware to provide a comprehensive suite of tools for surgeons looking to incorporate custom spine surgery into their practice.

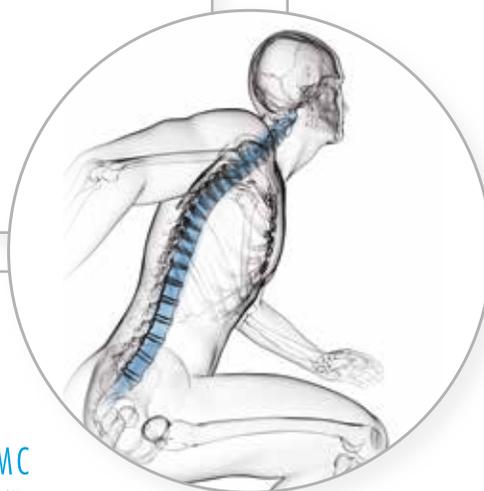
### INTERACTIVE 3D PLANNER



### PRE-OPERATIVE SURGICAL PLAN



### PATIENT-SPECIFIC GUIDES



### SPINAL IMPLANTS



## MEDACTA EDUCATION PROGRAM

At Medacta, the surgeon is never alone. The M.O.R.E. (Medacta Orthopedic Research and Education) Institute has created a comprehensive, personalized educational program which supports the surgeon in the integration of the MySpine navigation platform into their practice.

- **Reference Center:** You will have the opportunity to visit a Reference Center and attend live MySpine surgeries
- **Learning Center:** The Learning Center offers the opportunity to attend a MySpine workshop, meet experienced surgeons and discuss the clinical and economic benefits of the MySpine technology
- **Support:** Upon request, you will receive the assistance of an experienced Reference Surgeon to attend your first surgery in your own hospital
- **Continuous Education:** You can continue your education through MySpine user meetings, M.O.R.E. International events, Reference Center visits and other educational tools

Simply contact Medacta and we will create a personalized education program that is right for you!

## PATIENT MATCHED NAVIGATION IN SPINE SURGERY

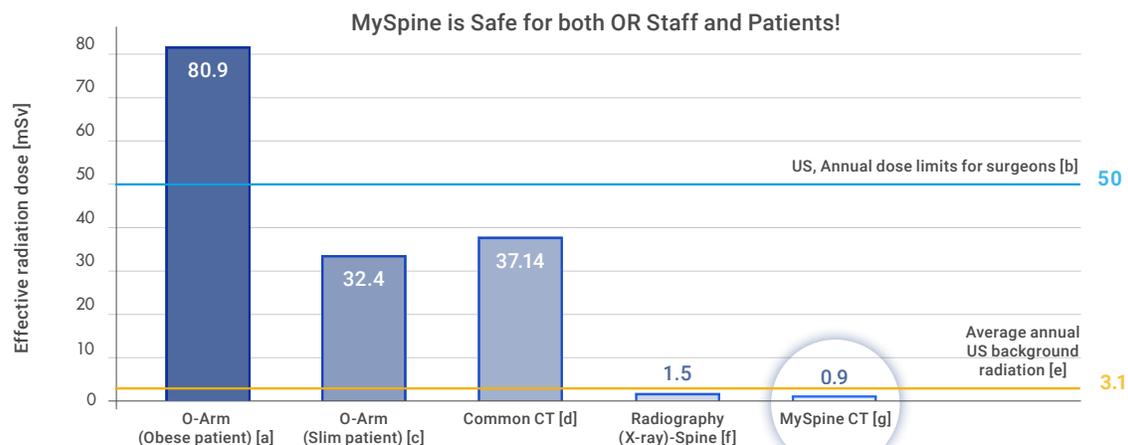
MySpine is a patient matched navigation platform which helps make personalized spine surgery viable with the patient-specific guides and pre-operative planning.

The core value proposition of the MySpine platform is:

- **PATIENT SAFETY**
- **CLINICAL OUTCOMES**
- **HEALTHCARE SUSTAINABILITY**
- **PERSONALIZED MEDICINE**

## PATIENT SAFETY

Medacta develops technologies with the patient in mind. For this reason, Medacta developed a proprietary algorithm for capturing a low-dose CT scan that is used to create the MySpine navigation guides with a fraction of the radiation exposure of competitive navigation systems.



**Comparison of conventional and competitors technique irradiation vs. MySpine**

[a] Lange et al. Estimating the effective radiation dose imparted to patients by intraoperative cone-beam computed tomography in toracolumbar spinal surgery, *Spine* 2013 [b] US Nuclear Regulatory Commission's (USNRC) [c] Lange et al. Estimating the effective radiation dose imparted to patients by intraoperative cone-beam computed tomography in toracolumbar spinal surgery, *Spine* 2013 [d] Biswas et al. Radiation Exposure from Musculoskeletal Computerized Tomographic Scans, *JBJs Am.* 2009 [e] Health Physics Society Specialists in Radiation Safety, Lawrence Berkeley National Laboratory; Fact Sheet 2010 [f] Radiation Dose in X-Ray and CT Exams; 2013 Radiological Society of North America, Inc [g] MySpine, Charité University Hospital, Berlin, Germany

## CLINICAL EFFICIENCY

The MySpine navigation platform is able to provide a patient-specific guided surgery in a streamlined process within 2 weeks from start to finish. The six-step process involves developing a three-dimensional model of the patient's anatomy and pre-operative plan from a single low-dose CT scan.



## CLINICAL OUTCOMES

The MySpine navigation platform could help facilitate:

- **Reduced tissue and muscle sparing through a single, minimally-invasive midline incision** <sup>[1, 2, 3]</sup>
- **Reduced radiation exposure by minimizing intra-operative radiographic imaging through the utilization of pre-operative planning and guided navigation** <sup>[11]</sup>
- **Reduced operational time and blood loss by minimizing intra-operative surgical steps** <sup>[3, 11]</sup>
- **Improved intra-operative screw trajectory, placement, and accuracy with patient-specific surgical guides** <sup>[5,6,7,8,10,12]</sup>

## SWISS COMPANY. YOUR GLOBAL PARTNER

Medacta's mission is to transform the patient experience by advancing surgical approaches, implants and instruments through responsible innovation and meticulous design in **joint replacement**, **spine surgery** and **sports medicine**. Medacta is a unique company in its field, as it is the only one founded by a patient. It follows the experience of the Founder Alberto Siccardi, whose own journey as a patient convinced him of the importance of pioneering a new approach to joint replacement.

Established in 1999, Medacta has leveraged its orthopedic expertise and comprehensive understanding of the human body to develop the **"MySolutions" technology**, which offers surgeons personalized pre-operative planning and implant placement methodologies by creating advanced personalized kinematic models and 3D planning tools.

Since 2009 a team of engineers has collaborated with international surgeons to develop innovative solutions for the treatment of various spine pathologies. The MySpine platform, along with MC-Midline Cortical guides, is a **3D printed patient matched solution** that, together with the M.U.S.T. Screw System, the MectaLIF Ti-coating family of interbody fusion devices, creates a harmonized and complete system, meeting surgeon needs and patient care expectations.

## HEALTHCARE SUSTAINABILITY

Medacta was founded with the philosophy of creating medical devices that facilitate healthcare sustainability. This is the reason why sustainability is a fundamental pillar of our way of doing business, in both environmental, economic and social terms. This philosophy translates into guidelines and internal regulations that guide our daily decisions and actions.

MySpine embodies this philosophy while providing a comprehensive navigation system with the following advantages over competitive systems:

- **No capital investment is required**
- **No recurring maintenance fee is required**
- **No restrictive vendor contract is required**
- **Low per-case disposable cost**
- **Viability in out-patient / surgery center environments** <sup>[12]</sup>

## REFERENCES

[1] Matsukawa K. et al., Incidence and Risk Factors of Adjacent Cranial Facet Joint Violation Following Pedicle Screw Insertion Using Cortical Bone Trajectory Technique, *Spine*, 2016 [2] Sakaura H. et al., Posterior lumbar interbody fusion with cortical bone trajectory screw fixation versus posterior lumbar interbody fusion using traditional pedicle screw fixation for degenerative lumbar spondylolisthesis: a comparative study, *JNS*, 2016 [3] Khanna N. et al., *Spine (Phila Pa 1976)*. 2016 Apr;41 Suppl 8:S90-6. doi: 10.1097/BRS.0000000000001475. Medialized, Muscle-Splitting Approach for Posterior Lumbar Interbody Fusion: Technique and Multicenter Perioperative Results [4] Gautschi O. et al., Maximal access surgery for posterior lumbar inter body fusion (PLIF) with divergent, cortical bone trajectory (CBT) pedicle-screws: a good option for minimize spine access and maximize the field for nerve decompression, *Journal of neurosurgical sciences*, 2015 [5] Matsukawa -2nd MORE Japan MySpine cortical Bone Trajectory 2017. <https://mysurgeon.medacta.com/uploads/presentation/attachments/d33a45ed-c550-438b-96b8-5e3fb1696725.mp4> [6] Matsukawa - Biomechanics of CBT (internal file) [7] Regev G et al., Nerve injury to the posterior rami medial branch during the insertion of pedicle screws: comparison of mini-open versus percutaneous pedicle screw insertion techniques. *Spine*. 2009;34(12):239-42 [8] Lamartina C. et al., Pedicle screw placement accuracy in thoracic and lumbar spinal surgery with a patient-matched targeting guide: a cadaveric study, *European Spine Journal*, 2015 [9] Santoni B.G. et al., Cortical bone trajectory for lumbar pedicle screws, *The Spine Journal*, 2009 [10] Mori K. et al., Short-Term Clinical Result of Cortical Bone Trajectory Technique for the Treatment of Degenerative Lumbar Spondylolisthesis with More than 1-Year Follow-Up, *Asian Spine Journal*, 2016 [11] Farshad M. et al., Accuracy of patient-specific template-guided vs. free-hand fluoroscopically controlled pedicle screw placement in the thoracic and lumbar spine: a randomized cadaveric study, *European Spine Journal*, 2017 [12] Chin K.R., Clinical Outcomes With Midline Cortical Bone Trajectory Pedicle Screws Versus Traditional Pedicle Screws in Moving Lumbar Fusions From Hospitals to Outpatient Surgery Centers, *Clinical Spine Surgery*, 2017 [13] Kaito T., Cortical pedicle screw placement in lumbar spinal surgery with a patient-matched targeting guide: A cadaveric study, *Journal of Ortopaedic Science*, 2018

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