Cutting-edge robotic imaging to drive minimally invasive procedures for multidisciplinary usage

Speed	Precision	No repetition
Optimize diagnostic experience by saving time with software that supports you in planning your needle paths. *syngo* Needle Guidance enables navigation even without the help of an optical navigation system. ARTIS pheno also automatically moves into position for the planned screw path and guides you to the precise entry point with a laser cross.	Visualize all anatomical details and plan your procedure with a 4-second *syngo* DynaCT in the prone position. ARTIS pheno allows you to optimally treat nearly any patient, regardless of patient size. The power-assisted tabletop permits hassle-free repositioning with zero force, even in tilted orientations for patients up to 280 kg.	Improve clinical outcomes by offering immediate postoperative quality control with the 4-second *syngo* DynaCT and *syngo* Fusion Package. Maintain the highest infection control standards in the hybrid OR with the antimicrobial surfaces of ARTIS pheno and its floor-mounted design that ensures uninterrupted laminar airflow.

[1] Courtesy: Jikei University School of Medicine, Tokyo, Japan

[2] Courtesy: Diakonie Klinikum Jung-Stilling, Siegen, Germany

[3] Quote: Dr. Ohashi, Senior Spine Surgeon – Neurosurgery Dept., Jikei University School of Medicine, Tokyo, Japan

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Deliver outcomes that matter to patients undergoing spinal fusion surgery, with ARTIS pheno

Plan and place pedicle screws precisely with *syngo* Needle Guidance

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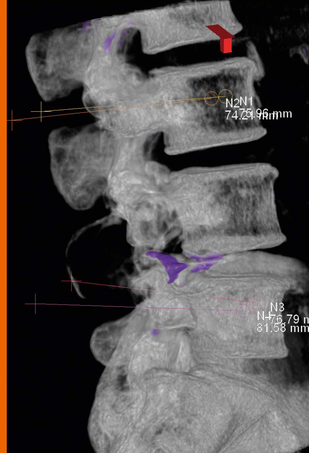
Speed. Precision. No Repetition.

Thanks to improving technologies, minimally invasive procedures are increasing in spine surgery, leading to reduced collateral tissue damage and scarring. This ultimately lowers healthcare costs and leads to better patient outcomes compared to open spine surgery.

To expand precision medicine, a reliable technology is crucial in spine surgery settings: image-guided or robotic-assisted systems are new partners that help make spine procedures **more safe, accurate, and efficient** by minimizing the risk of complications and increasing patient safety.

One step in this direction is the Siemens Healthineers-engineered ARTIS pheno: a cutting-edge robotic imaging system for individualized **preoperative planning, intraoperative guidance, and immediate postoperative quality control** – with *syngo* Needle Guidance you can even plan and place pedicle screws precisely without the help of a navigation system.

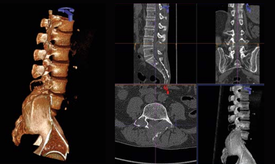


Better results in challenging spinal fusion cases

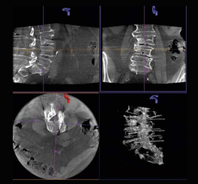
Case 1 Challenges:
- Precise screw placement
- Use of large instruments

Case 2 Challenges:
- Use of large instruments
- Obese patient (BMI 44)

ARTIS pheno offers:
- *syngo* DynaCT Body in 4 seconds
- Wide-space C-arm
- *syngo* Needle Guidance
- *syngo* DynaCT SMART for metal artefact reduction



Case 1[1]

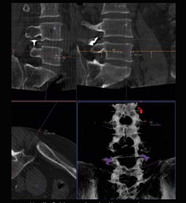


Case 2[2]

Preoperative
Planning the screw path you need for surgery

Preoperative planning can be performed in the OR right before surgery with an intraoperative *syngo* DynaCT 3D scan in just 4 seconds. This saves time and the hassle of outside planning.

Plan the needle path using *syngo* Needle Guidance on a scan performed in the prone position (as opposed to a preoperative supine image), which produces an exact anatomical outline. An entry and a defined endpoint can be planned easily for multiple pedicle screw pathways. Screw lengths can be calculated and the OR team can plan the procedure accordingly.



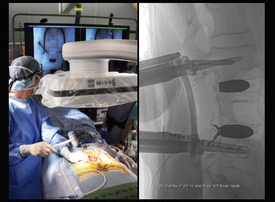
syngo Needle Guidance: planning the procedure on an intraoperative *syngo* DynaCT scan[1]

Intraoperative
Deployment facilitated by *syngo* Needle Guidance

syngo Needle Guidance helps you define the pedicle screw paths.

The laser cross then guides you to the desired entry point at the angle you envisioned. After defining the needle path using *syngo* Needle Guidance, the ARTIS pheno automatically moves in the planned direction, pinpointing the entrance point with a laser cross. The path is shown superimposed on the live fluoroscopy image regardless of the perspective you choose.

This can make a navigation system obsolete in 90% of cases[3] – save for major deformities or complex procedures. In sum, the ARTIS pheno offers more space, increased speed and can help to reduce patient burden.



Inserting K-wires and screws under fluoroscopic guidance[1]

Intraoperative
Deployment using the wide-space C-arm

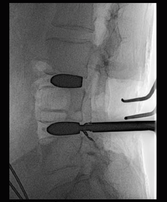
The wide-space C-arm with free space of 95.5 cm between the tube and detector allows working with large instruments during minimally invasive procedures. This makes patient positioning simpler.

Working with large instruments, especially for thoracic spine procedures, lateral positioning, or use of a microscope, can now be performed without pushing the C-arm out of the way or sacrificing workspace.

Operating with multiple products with the C-arm still in place: lateral a.p.[1]

Intraoperative
Deployment of implants using low dose fluoroscopy

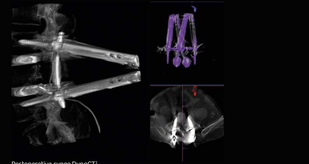
It is most important to ensure immediate correct placement of the pedicle screws or other implants used. High-end fluoroscopy image quality enables precise positioning even at low dose.



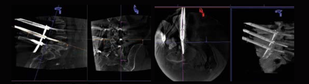
2D fluoroscopy image[1]

Postoperative
Quality control with a 4-second *syngo* DynaCT

At the end of surgery, right before the patient is closed, a postoperative *syngo* DynaCT scan of 4 seconds can confirm precise positioning of the implants used. This makes revision surgeries to correct misplaced pedicle screws obsolete, lowers the burden on the patient, and reduces healthcare costs.



Postoperative *syngo* DynaCT[1]



Postoperative *syngo* DynaCT[2]

"One huge benefit is the additional 13 cm of SID, which helps in performing a syngo DynaCT without colliding with the head clamp, or in performing thoracic spinal fusion, which requires large instruments."

Prof. Yuichi Murayama, MD,
Jikei University School of Medicine, Tokyo, Japan

"Since we have ARTIS pheno in our OR, our colleagues really enjoy their work."

Prof. Veit Braun, MD,
Diakonie Klinikum Jung-Stilling, Siegen, Germany