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Clinical Literature Library

Title	Author	Year	Journal	Keywords	Link
Platzierung von Pedikelschrauben mit einem Augmented-Reality-Head-Mounted-Display in einem Schweinemodell	Henrik Frisk	2024	JOVE JOURNAL Medizin	Drill Guide, Loop-X, Spine Mixed Reality Navigation, Elements Spine Planning	Go to article
Technique, Safety, and Accuracy Assessment of Percutaneous Pedicle Screw Placement Utilizing Computer-Assisted Navigation in Lateral Decubitus Single-Position Surgery	Anna-Katharina Calek	2024	International Journal of Spine Surgery	Spine Navigation, Drill Guide, Automatic Image Registration (AIR), Accuracy	Go to article
Augmented Reality in Spine Surgery: A Case Study of Atlantoaxial Instrumentation in Os Odontoideum	Li et al.	2024	Medicina	Spine Navigation, Microscope Navigation, Cervical, Augmented Reality	Go to article
Using Augmented Reality Technology to Optimize Transfacet Lumbar Interbody Fusion: A Case Report	Bardeesi et al.	2024	JCM (Journal of Clinical Medicine)	Spine Navigation, Microscope Navigation, Elements SmartBrush Spine, Elements Curvature Correction Spine, MIS	Go to article
Cirq® robotic assistance for thoracolumbar pedicle screw placement – feasibility, accuracy, and safety	Gabrovsky Nikolay et al.	2023	Brain and Spine	Cirq Instrument Guidance, Spine Navigation, Accuracy, Screw Placement	Go to article
Navigated, percutaneous, three-step technique for lumbar and sacral screw placement: a novel, minimally invasive, and maximally safe strategy	La Rocca et al.	2023	Journal of orthopaedics and traumatology	Spine Navigation, Drill Guide, Accuracy, Screw Placement, Lumbar, Airo	Go to article
Using Novel Segmentation Technology to Define Safe Corridors for Minimally Invasive Posterior Lumbar Interbody Fusion	Troy Q Tabarestani	2023	Operative Neurosurgery	Elements SmartBrush Spine, Elements Curvature Correction Spine, Microscope Navigation, Airo	Go to article
Ten-step minimally invasive slalom unilateral laminotomy for bilateral decompression (sULBD) with navigation	Adelhoefer et al.	2023	BMC musculoskeletal disorders	Spine Navigation, Airo, Lumbar, MIS	Go to article
Radiation doses and accuracy of navigated pedicle screw placement in cervical and thoracic spine surgery: a comparison of sliding gantry CT and mobile cone-beam CT in a homogeneous cohort	Lea Baumgart	2023	Journal of neurosurgery	Spine Navigation, Radiation Exposure, Accuracy	Go to article
Airo® navigation versus freehand fluoroscopy technique: A comparative study of accuracy and radiological exposure for thoracolumbar screws placement	Chatelain	2023	Neurochirurgie	Spine Navigation, Airo, Accuracy, Radiation Exposure	Go to article
Intraoperative computed tomography-guided navigation for implant anchorage in spine surgery	Ralph Kothe	2023	Operative Orthopädie und Traumatologie	Spine Navigation, Airo, Accuracy, Radiation Exposure	Go to article

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Comparison of three imaging and navigation systems regarding accuracy of pedicle screw placement in a sawbone model	Beisemann et al.	2022	Scientific reports	Spine Navigation, Airo, ICT, Accuracy	Go to article
Intraoperative CT-guided navigation versus fuoroscopy for percutaneous pedicle screw placement in 192 patients: a comparative analysis	La Rocca et al.	2022	Journal of Orthopaedics and Traumatology	Drill Guide, Spine Navigation, Airo, Accuracy, Radiation Exposure	Go to article
Safety and Feasibility of Augmented Reality Assistance in Minimally Invasive and Open Resection of Benign Intradural Extramedullary Tumors	Sommer et al.	2022	Neurospine	Microscope Navigation, Elements Curvature Correction Spine, Elements SmartBrush Spine, Head Up Display (HUD), Augmented Reality, Elements Viewer	Go to article
Augmented Reality to Improve Surgical Workflow in Minimally Invasive Transforaminal Lumbar Interbody Fusion – A Feasibility Study With Case Series	Sommer et al.	2022	Neurospine	Elements SmartBrush Spine, Elements Curvature Correction Spine, Airo, MIS, Microscope Navigation, Elements Viewer	Go to article
Navigation Techniques in Endoscopic Spine Surgery	Hagan et al.	2022	BioMed research international	Spine Navigation, Airo, Automatic Image Registration (AIR), MIS, Endoscopic	Go to article
Atlantoaxial posterior screw fixation using intra-operative spinal navigation with three-dimensional isocentric C-arm fluoroscopy	Jannelli et al.	2022	International orthopaedics	Spine Navigation, Cervical, Drill Guide, Screw Placement	Go to article
Pedicle Screw Placement Using Intraoperative Computed Tomography and Computer-Aided Spinal Navigation Improves Screw Accuracy and Avoids Postoperative Revisions: Single-Center Analysis of 1400 Pedicle Screws	Hagan et al.	2022	World neurosurgery	Spine Navigation, Accuracy, Revision Surgery, Airo, ICT, Screw Placement	Go to article
Elastic Image Fusion Software to Coregister Preoperatively Planned Pedicle Screws With Intraoperative Computed Tomography Data for Image-Guided Spinal Surgery.	Schmidt et al.	2021	International journal of spine surgery	Spine Navigation, Airo, Screw Placement	Go to article
Initial Intraoperative Experience with Robotic-Assisted Pedicle Screw Placement with Cirq® Robotic Alignment: An Evaluation of the First 70 Screws	Pojskić et al.	2021	JCM	Spine Navigation, Alignment System Spine, Accuracy, Screw Placement, Screw Entry Point	Go to article

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Evaluation of the implantation of transpedicular screws in spinal instrumentation with free-hand technique and navigation-assisted with intraoperative computed tomography: An analytical-positional study	González-Vargas et al.	2021	Neurocirugia	Spine Navigation, Accuracy, Screw Placement	Go to article
Spine Surgery Supported by Augmented Reality	Carl et al.	2020	Global Spine Journal	Elements SmartBrush, Elements Segmentation Spine, Elements Image Fusion, Elements Curvature Correction Spine, Head Up Display (HUD), Microscope Navigation	Go to article
Cirq® Robotic Assistance for Minimally Invasive C1-C2 Posterior Instrumentation: Report on Feasibility and Safety	Farah et al.	2020	Operative neurosurgery (Hagerstown, Md.)	Spine Navigation, Automatic Image Registration (AIR), Airo, Cervical, MIS	Go to article
Accuracy and safety of pedicle screws implantation using Zeego and Brainlab navigation system in hybrid operation room	Fong et al.	2020	Formos J Surg	Spine Navigation, Automatic Image Registration (AIR), Registration Accuracy, MIS, Radiation Exposure	Go to article
Spinal navigation for posterior cervical and cervicothoracic instrumentation	Richter, Ploux D	2019	Operative Orthopadie Traumatologie	Spine Navigation, Transpedicular Screws, Cervical, Airo	Go to article
Standard navigation versus intraoperative computed tomography navigation in upper cervical spine trauma	Carl et al.	2019	International journal of computer assisted radiology and surgery	Microscope Navigation, Spine Navigation, Airo, Automatic Image Registration (AIR), Screw Placement, Radiation Exposure	Go to article
Implementation of augmented reality support in spine surgery	Carl et al.	2019	European spine journal : official publication of the European Spine Society, the European Spinal Deformity Society, and the European Section of the Cervical Spine Research Society	Microscope Navigation, Spine Navigation, Airo, Low Dose CT, Tumor, Augmented Reality	Go to article
Minimal invasive percutaneous C1C2 fixation using an intraoperative 3D imaging-based navigation system on management of odontoid fractures	Meyer et al.	2019	World neurosurgery	Spine Navigation, Airo, Cervical	Go to article

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Augmented reality in intradural spinal tumor surgery	Carl et al.	2019	Acta neurochirurgica	Microscope Navigation, Spine Navigation, Automatic Image Registration (AIR), Head Up Display (HUD), Tumor, Airo	Go to article
Navigation Versus Fluoroscopy in Multilevel MIS Pedicle Screw Insertion: Separate Analysis of Exposure to Radiation of the Surgeon and of the Patients	Konieczny, Krauspe	2019	Clin Spine Surg (Clinical spine surgery)	Spine Navigation, MIS, Radiation Exposure, Screw Placement	Go to article
Is bony attachment necessary for dynamic reference frame in navigation-assisted minimally invasive lumbar spine fusion surgery?	Lin et al.	2019	Computer assisted surgery (Abingdon, England)	Spine Navigation, MIS, Lumbar	Go to article
Radiation exposure for the surgical team in a hybrid-operating room	Schuetze et al.	2019	Journal of robotic surgery	Spine Navigation, Sacroiliac, Radiation Exposure	Go to article
Safety and Efficacy of Posterior Atlanto-Axial Stabilization Using Intraoperative Navigation System with Preoperative Computed Tomographic Scan	Fiorenza, Ascanio	2019	World neurosurgery	Spine Navigation, ICT, Cervical	Go to article
Intraoperative Computed Tomography Versus 3D C-Arm Imaging for Navigated Spinal Instrumentation	Hecht et al.	2018	Spine	Spine Navigation, Automatic Image Registration (AIR), Airo, Screw Placement, Accuracy	Go to article
Spinal navigation for posterior instrumentation of C1-2 instability using a mobile intraoperative CT scanner	Czabanka et al.	2017	Journal of neurosurgery. Spine	Spine Navigation, Airo, Cervical	Go to article
Total Navigation in Spine Surgery; A Concise Guide to Eliminate Fluoroscopy Using a Portable Intraoperative Computed Tomography 3-Dimensional Navigation System	Navarro-Ramirez et al.	2017	World neurosurgery	Spine Navigation, Airo, Accuracy, MIS, Revision Surgery	Go to article
Comparison of minimally invasive spine surgery using intraoperative computed tomography integrated navigation, fluoroscopy, and conventional open surgery for lumbar spondylolisthesis: a prospective registry-based cohort study	Wu et al.	2017	The spine journal : official journal of the North American Spine Society	Spine Navigation, MIS, Patient Outcomes, TLIF, Spondylolisthesis	Go to article
Accuracy of CT-navigated pedicle screw positioning in the cervical and upper thoracic region with and without prior anterior surgery and ventral plating	Rienmüller et al.	2017	The Bone & Joint Journal	Spine Navigation, Cervical, Transpedicular Screws, K-wire, Drill Guide	Go to article

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Accuracy of computer-assisted iliosacral screw placement using a hybrid operating room	Richter et al.	2016	Injury	Spine Navigation, Accuracy, Sacroiliac, Revision Surgery, Trauma	Go to article
3-D-navigierte Pedikelschrauben der Halswirbelsäule – Erfahrungen und Komplikationsanalyse	Schiffer et al.	2016	Zeitschrift fur Orthopadie und Unfallchirurgie	Spine Navigation, Cervical, Transpedicular Screws, K-wire, Drill Guide	Go to article
Three-dimensional navigation is more accurate than two-dimensional navigation or conventional fluoroscopy for percutaneous sacroiliac screw fixation in the dysmorphic sacrum: a randomized multicenter study	Matityahu et al.	2014	Journal of orthopaedic trauma	Spine Navigation, Accuracy, Sacroiliac, Trauma	Go to article
Comparison of navigated versus non-navigated pedicle screw placement in 260 patients and 1434 screws: screw accuracy, screw size, and the complexity of surgery	Luther et al.	2013	Journal of spinal disorders & techniques	Spine Navigation, Accuracy, Spinal Fusion, Stereotaxy	Go to article
Application of intraoperative computed tomography with or without navigation system in surgical correction of spinal deformity: a preliminary result of 59 consecutive human cases	Cui et al.	2012	Spine	Spine Navigation, Accuracy, Scoliosis, Khyposis, Screw Placement	Go to article
Individualized treatment of craniovertebral junction malformation guided by intraoperative computed tomography	Li et al.	2012	Journal of spinal disorders & techniques	Spine Navigation, Automatic Image Registration (AIR), Registration Accuracy, ICT	Go to article
Accuracy of image-guided pedicle screw placement using intraoperative computed tomography-based navigation with automated referencing, part I: cervicothoracic spine	Scheufler et al.	2011	Neurosurgery	Spine Navigation, Automatic Image Registration (AIR), Radiation Exposure, Screw Placement	Go to article
Accuracy of image-guided pedicle screw placement using intraoperative computed tomography-based navigation with automated referencing. Part II: thoracolumbar spine	Scheufler et al.	2011	Neurosurgery	Spine Navigation, Automatic Image Registration (AIR), ICT, Registration Accuracy, Radiation Exposure	Go to article
Less invasive surgical correction of adult degenerative scoliosis, part I: technique and radiographic results	Scheufler et al.	2010	Neurosurgery	Spine Navigation, Automatic Image Registration (AIR), Radiation Exposure, Scoliosis	Go to article

Title	Author	Year	Journal	Keywords	Link
Iso-C/3-dimensional neuronavigation versus conventional fluoroscopy for minimally invasive pedicle screw placement in lumbar fusion	Fraser et al.	2010	Minimally invasive neurosurgery : MIN	Spine Navigation, Accuracy, MIS	Go to article
Can computer-assisted surgery reduce the effective dose for spinal fusion and sacroiliac screw insertion?	Kraus et al.	2010	Clinical orthopaedics and related research	Spine Navigation, Radiation Exposure, Spinal Fusion, Sacroiliac	Go to article
Less invasive surgical correction of adult degenerative scoliosis, part I: technique and radiographic results.	Scheufler et al.	2010	Neurosurgery	Spine Navigation, ICT, Radiation Exposure, Scoliosis, Spinal Fusion	Go to article
Cervical Pedicle Screws Conventional Versus Computer-Assisted Placement of Cannulated Screws.	Richter M	2005	Spine	Spine Navigation, Cervical, Transpedicular Screws, K-wire, Drill Guide	Go to article