



## Instrument Tracking for Prone Lateral Surgery

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### Key words

- Instrument tracking
- Minimally invasive
- Navigation
- Prone lateral surgery
- Retroperitoneal transposas
- Spine surgery

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The prone lateral transposas approach for lumbar interbody fusion and posterior instrumentation enables a large surface area implant without disruption of the posterior spine musculature from a single position.<sup>1,2</sup> The addition of virtual live fluoroscopy instrument tracking navigation to surgery provides multiple benefits, including a reduction in patient and surgeon radiation exposure, highly accurate and dynamic spatial tool localization, and flexible equipment and patient positioning.<sup>3,4</sup> Here, we highlight the use of virtual live fluoroscopy in prone lateral spine surgery. A 75-year-old man presented with prior L3-L5 fusion and progressive lower extremity pain and weakness. Using the described techniques, the patient underwent a lateral retroperitoneal interbody fusion and posterior instrumentation at L2-L3. The operation proceeded without complication, and the patient reported improved ambulation at 6-week follow-up. The prone lateral transposas approach and minimally invasive posterior instrumentation for lumbar interbody fusion permits effective fusion without significant posterior muscle disruption from a single position. The integration of virtual live fluoroscopy enables real-time instrument tracking throughout the minimally invasive case, with reductions in patient and surgeon radiation exposure. Video 1 depicts the use and benefits of this technology in lateral spine surgery. Compared with computed tomography-guided navigation, virtual live fluoroscopy technology enables rapid remapping to iatrogenic anatomic changes for more fluid progression through the operation.<sup>5</sup> Virtual live fluoroscopy instrument tracking is a valuable tool that increases the safety and efficiency of single-position lateral spine surgery.

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