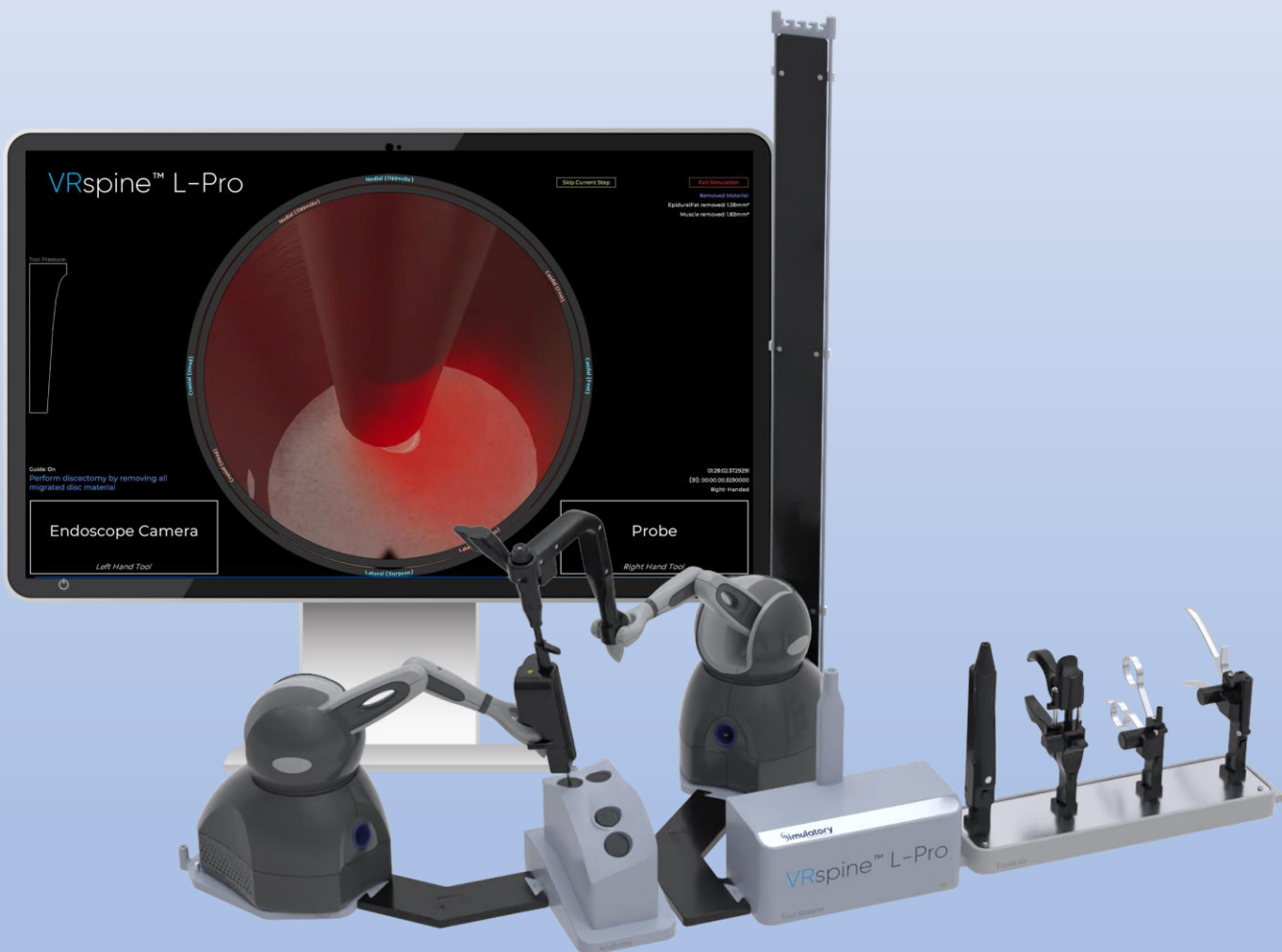


VRspine™ L-Pro

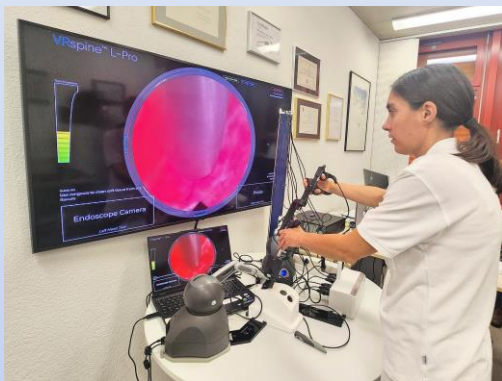
The Smart Digital Simulator for Lumbar Spine Endoscopy



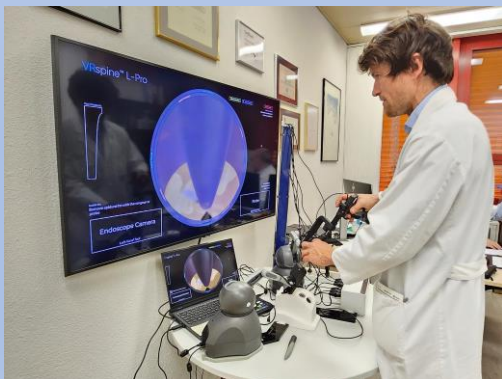
Digital Learning Experience

VRspine™ L-Pro is a professional high-fidelity digital simulator for Lumbar Spine Endoscopy built on Simulatory's [Smart Simulation Platform](#).

VRspine™ L-Pro provides advanced digital training for spine surgeons looking to learn or perfect endoscopic spine surgery using either a biportal or uniportal approach.



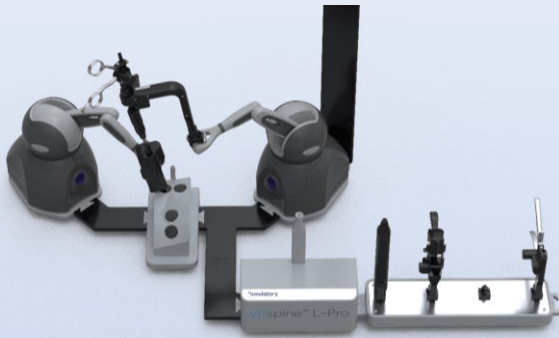
Focused, deliberate practice can help reduce the learning curve thanks to realistic visualization, realistic surgical instrument handling and realistic 3D haptic feedback that mimic the operating room experience.



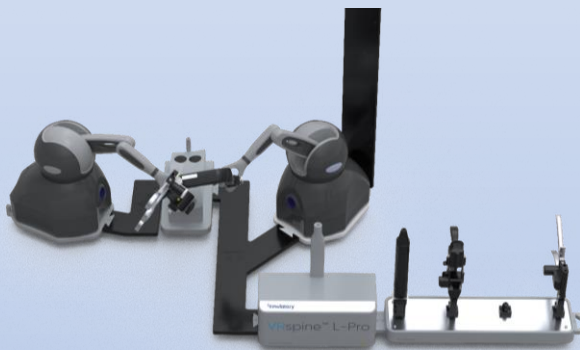
Modular Setup Extends Functionality

Practice with realistic surgical instruments to reduce the learning curve.

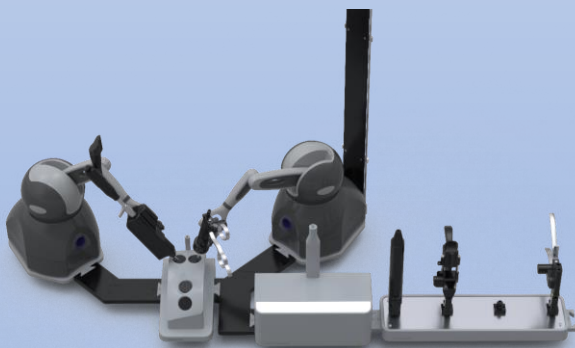
Modular puzzle pieces can be arranged in biportal or uniportal configurations.



Uniportal Interlaminar Approach

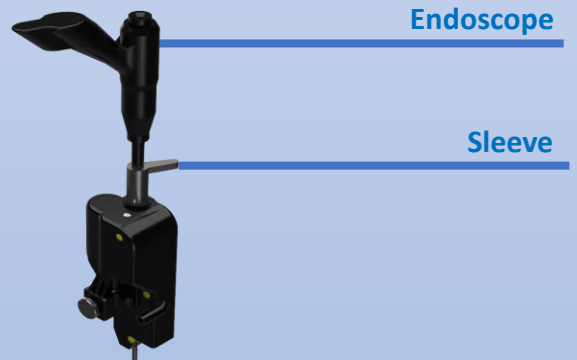


Uniportal Transforaminal Approach



Biportal Approach

- Automatic instrument detection technology senses which instrument has been selected and tracks its movement.
- One-handed operation of surgical instruments frees the other hand to hold the endoscope/sleeve.
- Choice of Kerrison, rongeur, bipolar probe or burr.
- Allows for quick switch between instruments.
- VRspine™ L-Pro can be set-up for left-handed or right-handed surgeons.
- No need for consumables.

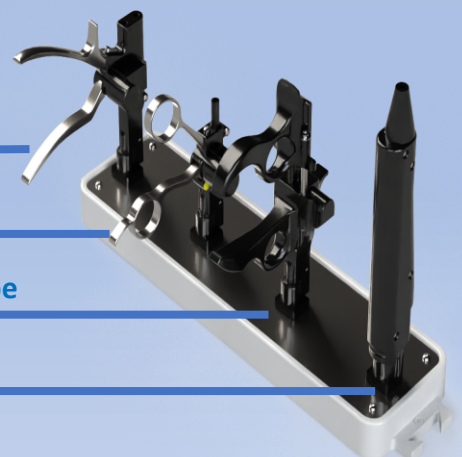


Kerrison

Rongeur

Bipolar probe

Burr

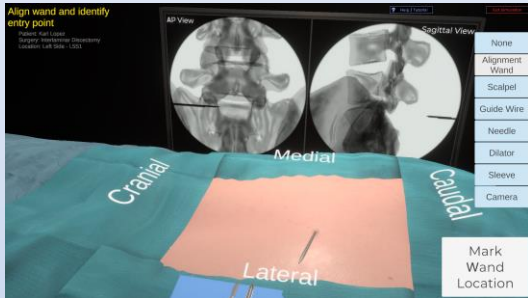


Perfect Your Skills in Safe Environment

Whether starting to learn or already at an advanced level **VRspine™ L-Pro** provides flexible training anytime, anywhere.

Practice Navigation

Simulated X-ray navigation helps locate the correct incision point without exposure to radiation.



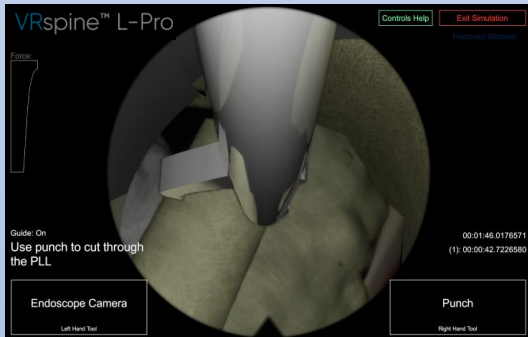
Build Competence

Training on advanced endoscopic lumbar spine procedures builds competence and confidence.



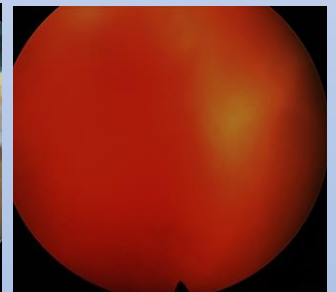
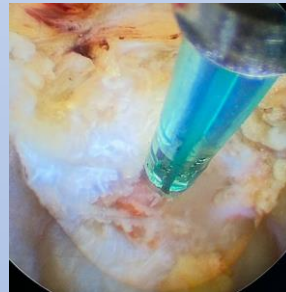
Follow Guidance

The AI Mentor walks you through each step providing instructions on what to do and helpful hints.



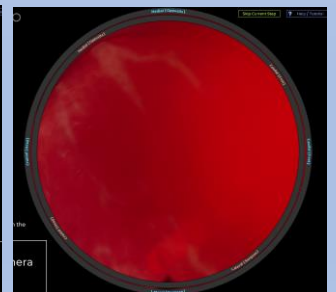
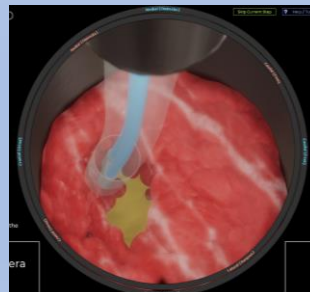
Train Visualization

The endoscopic view helps you visualize key anatomic landmarks and handle realistic surgical instruments in the restricted surgical space.



Manage Complications

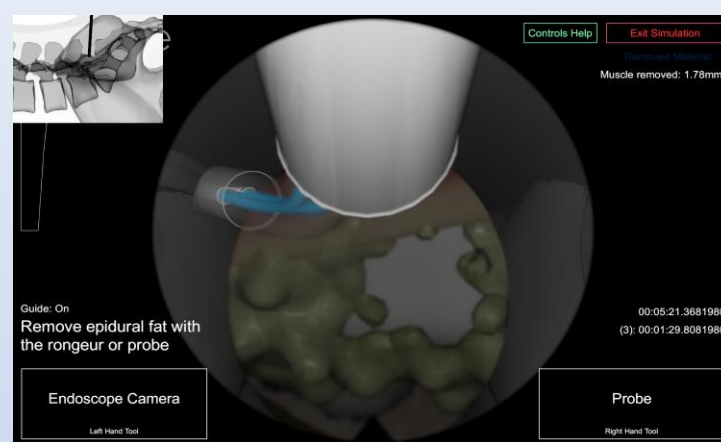
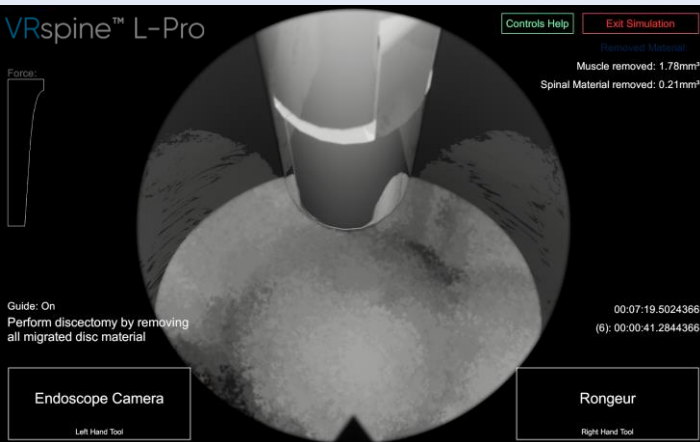
Practice complications like uncontrolled bleeding which mimic real scenarios but in a safe environment



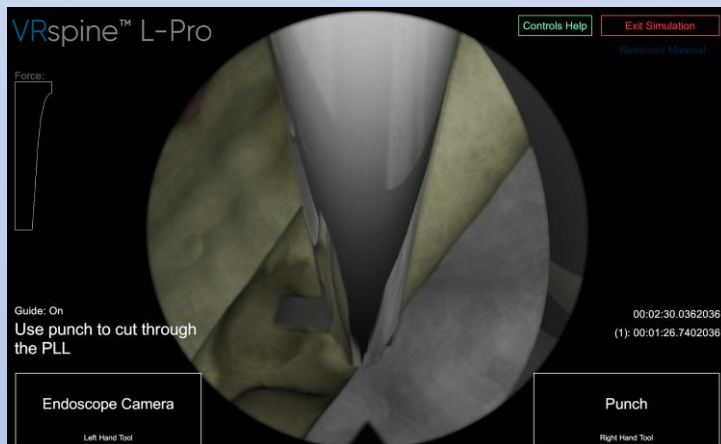
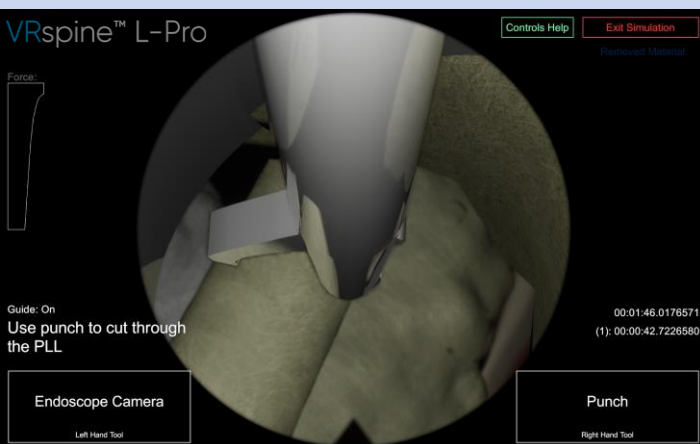
Train on Multiple Modules

Choice of different modules for interlaminar, transforaminal or spinal stenosis based on patient history and X-rays.

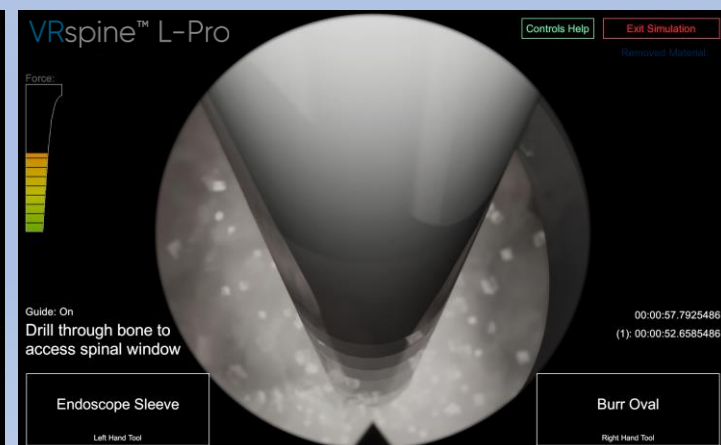
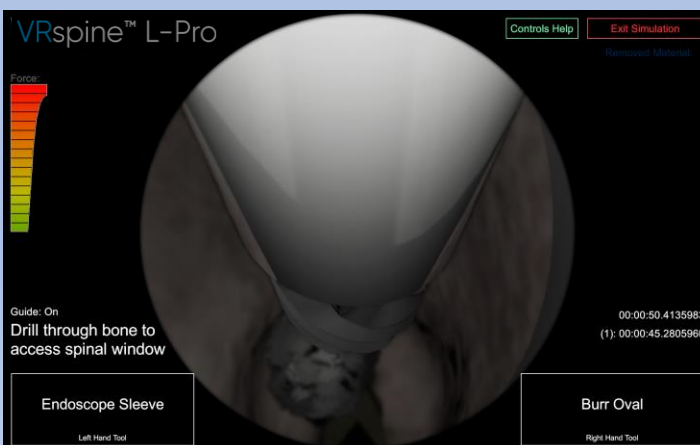
Interlaminar Endoscopic Spine Surgery



Transforaminal Endoscopic Spine Surgery



Spinal Stenosis



Adaptive Training & Deliberate Practice

VRspine™ L-Pro offers unlimited training opportunities with realistic visuals, realistic surgical instruments and realistic haptic feedback.

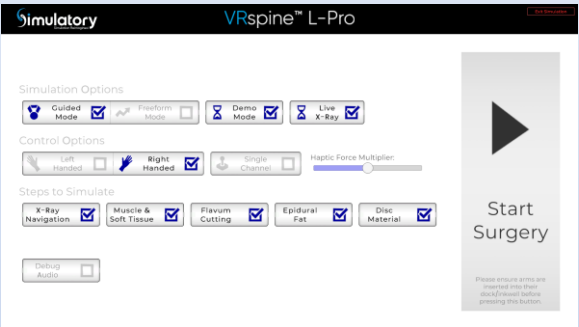
Unlimited Training

A vast library of over 700 patient cases with varying degrees of difficulty simulate unique scenarios to keep you challenged and engaged.

Simulativity VRspine™ L-Pro				
Patient Name	Affliction	Location	Procedure	Actions
Muchem Ali	protrusion	L5/S1 disc	Interlaminar Discectomy (right)	Choose
Yuna Diaz	bulge	L4/L5 disc	Interlaminar Discectomy (left)	Choose
Santiago Esposito	bulge	L4/L5 disc	Lumbar Stenosis (left)	Choose
Leo Ali	bulge	L5/S1 disc	Transforaminal Discectomy (left)	Choose
Diego Gonzalez	bulge	L5/S1 disc	Interlaminar Discectomy (left)	Choose
Alessandro Liu	bulge	L5/S1 disc	Lumbar Stenosis (left)	Choose
Robert Alves	bulge	L5/S1 disc	Transforaminal Discectomy (left)	Choose
Karl Lopez	bulge	L5/S1 disc	Interlaminar Discectomy (left)	Choose
Michael Martin	protrusion	L5/S1 disc	Lumbar Stenosis (right)	Choose

Focused Training

VRspine™ L-Pro lets you focus on specific tasks before progressing to the next step with each scenario adjusted to your skill level.



Immediate Feedback

Intelligent performance metrics track your progress and provide feedback reports after every trial.

Simulativity Surgery Results VRspine™ L-Pro		
7/10	Time Taken: 0:03:34	Final Decompressed Spine
Overview: Whole Surgery	X-Ray Attempts: 0 misses	
Step 1: Identify Entry Point	Tool Tip Not in View: 9 times	
Step 2: Soft-Tissue Removal	Flavum Cut Wrong Orientation: 3 times	
Step 3: Cut through flavum	Neural Tissue Damaged: 1 times	
Step 4: Epidural Fat Removal	Wrong Tool Used: 1 times	
Step 5: Retract neural struct...	Excess Force Used: 2 times	
Step 6: Herniated Disc Mater...		
Step 7: Relieve Pressure on S...		
Step 8: Check cleared area		

Unguided Approach

For advanced learning, train on patient cases without any guidance or helpful hints.



“VRspine™ L-Pro has the potential to significantly reduce the learning curve of endoscopic spine surgery and will become essential in the training of spine surgeons.”

Dr. Ralf Wagner
Ligamenta Spine Center
Frankfurt, Germany

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