

## New Percutaneous Access Method for Minimally Invasive Anterior Lumbosacral Surgery

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**Abstract:** Preliminary cadaver, animal, and human studies were performed to determine the feasibility of axial anterior lumbosacral spine access using a percutaneous, presacral approach. Custom instruments were directed under fluoroscopic guidance along the midline of the anterior sacrum to the surface of the sacral promontory where an axial bore was created into the lower lumbar vertebral bodies and discs. Imaging and gross dissection were performed in cadavers and animals. The procedure was used for lumbosacral biopsy in human subjects guided by intraoperative imaging and clinical monitoring. All procedures were technically successful. This study demonstrates the feasibility of the axial access technique to the anterior lower lumbar spine.

**Key Words:** spine, percutaneous treatment, minimally invasive surgery, lumbar spine surgery