

ACALADE: SURGICAL DEVICE DESIGNED FOR FASTER, SAFER LUMBAR DISCECTOMY

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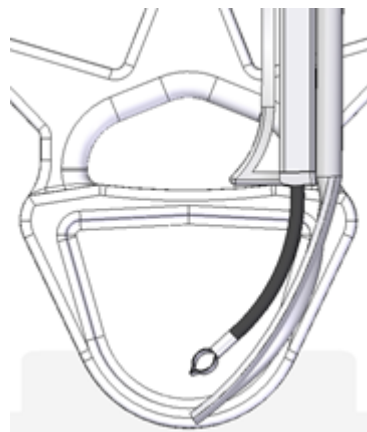
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Technology Description

A team of researchers at Washington University have developed ACALADE (Advanced Capability Lumbar Discectomy), a device designed to help surgeons safely access and quickly remove the back portions of herniated discs for faster, lower risk lumbar discectomy.

Currently, about 30,000 patients per year with herniated disc undergo lumbar discectomy, a challenging and time-consuming procedure that risks damaging the thecal sac surrounding the spinal cord. In particular, it is difficult for conventional tools to maneuver around the thecal sac and reach the back portion of the disc. ACALADE solves this problem using a drill bit attached to a flexible shaft and equipped with a system of guards and guides. With this device, the surgeon can use preoperative scans to position the guides and preset protective stops which shield the thecal sac during the procedure. Then ACALADE's suction and drilling mechanisms can safely and efficiently remove difficult portions of the disc. It is projected that this device could reduce discectomy surgery time by 50%.

ACALADE Design Concept



Stage of Research

The inventors have built a prototype of the disposable drill bit portion of this device and tested it on cow spines.

Applications

- **Spinal surgery** – instrument for complete lumbar discectomy

Key Advantages

- **Easier access for faster surgery:**

- ACALADE is designed to help surgeons access and remove the back portions of the disc
- projected to reduce time of surgery by 50% compared to conventional lumbar discectomy
- **Improved safety** – guard, guide and flexible shaft components of ACALADE incorporate protective features to avoid damaging the thecal sac
- **Simple tools** – easy for surgeons to learn how to use

Patents - [Discectomy instrument](#) (U.S. Patent Application, Publication No. US20180014837)

Website - [Leuthardt Lab](#)