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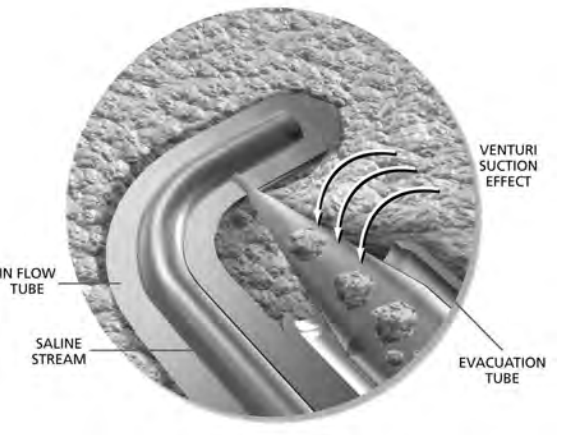
REPRINT

SPINEJET HYDROSURGERY SYSTEM WITH PATENTED FLUIDJET TECHNOLOGY TURNS WATER INTO A SURGICAL TOOL

Safe, Fast, and Effective

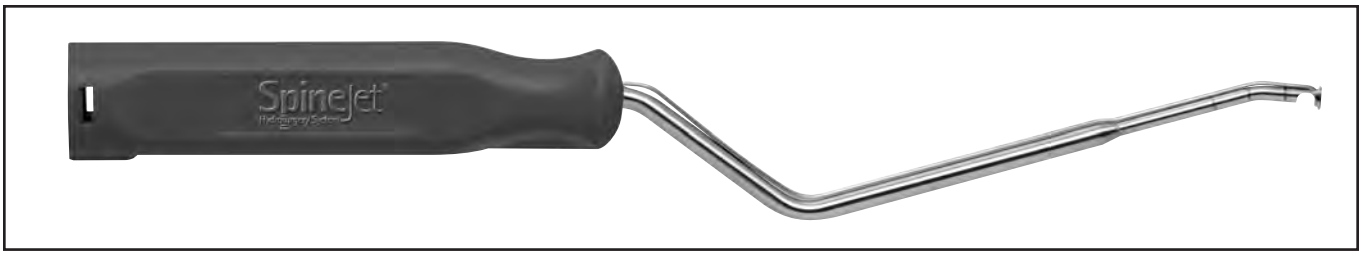
The **SpineJet Hydrosurgery System** from **HydroCision® (Billerica, MA),** uses an innovative surgical modality to give physicians consistent and reliable results during spinal surgery procedures. HydroCision's proprietary fluidjet technology uses a hair-thin supersonic stream of water that provides an effective tool for cutting, ablating, and collecting targeted tissue in a precise and controlled manner. The SpineJet Hydrosurgery System features the **SpineJet XL® Fusion Preparation System** and the **SpineJet MicroResector MD** for microdiscectomy.



The SpineJet XL Fusion Preparation System allows surgeons to more effectively prepare the intervertebral disc space for graft implantation during open or minimally invasive lumbar interbody fusion procedures. This all-in-one tool combines the power of fluidjet technology with a unique curette design that can simultaneously cut, ablate and remove hard or soft tissue—such as disc nucleus and endplate cartilage— quickly, safely and effectively, eliminating the need for additional instruments. The SpineJet XL removes 95% more posterior contralateral nucleus than conventional devices[1] and its unique tip design protects against annular penetration. The SpineJet XL is designed to work in conjunction with all currently available minimally invasive access systems and is ideal for PLIFs, TLIFs and XLIF procedures. Mark R. Grubb, MD, an orthopedic spine surgeon at Northeast Ohio Spine Center (Canton/Akron, OH), finds that with the SpineJet XL he "can do a more complete discectomy with this system than with traditional curettes and pituitary rongeurs." Dr. Grubb continues, "The key to successful arthrodesis is endplate preparation, regardless of which bone graft or interbody device you choose to use. I was skeptical at first about how much of the disc material I could actually remove using this device and how well I would be able to prepare the endplates versus using my conventional instruments. I was finally convinced when I did a cadaver lab and saw that there was a significant difference. I thought I had done a pretty thorough job with my regular instruments, but I didn't do nearly as complete a job as I did with the SpineJet XL."

Dr. Grubb also notes that the SpineJet XL is not only more effective, but is a safer system that saves him time in the OR. "There are fewer instrument passes into and out of the disc space and, therefore, less risk to the nerve root. The SpineJet XL has also replaced a number of tools that I once used. Once a surgeon tries this technique, he or she will never want to go back to standard conventional tools."

The SpineJet MicroResector MD is based on HydroCision's HydroDiscectomy platform. HydroDiscectomy uses a high-velocity waterjet to quickly and safely decompress herniated discs providing relief to patients suffering from chronic back and/or leg pain. The minimally invasive HydroDiscectomy procedure bridges the gap between conservative therapy and conventional open surgery. The smaller annulotomy created with the SpineJet MicroResector 4-mm cannula system decreases the risk of reherniation.[2] This method requires fewer instrument passes into and out of the disc space and the nerve root is decompressed with minimal intraoperative manipulation, reducing the incidence of recurrent radicular pain associated with epideral fibrosis.[2]



The SpineJet XL Fusion Preparation System allows surgeons to more effectively prepare disc space for graft implantation in certain procedures.

Surgeons can precisely control the amount of disc material removed, making the procedure even more efficient.

Mitchell A. Hardenbrook, MD, an orthopedic spine surgeon with the Boston Spine Group, New England Baptist Hospital (Boston, MA), says that when he was the Director of Spine Surgery at the Naval Medical Center in Portsmouth, Virginia,* he found many patients were not making it back to full duty following microdiscectomy. "There was a high recurrence rate and we figured it was because of their high activity demand. We also found a group of personnel who weren't having recurrences, but who were having persistent leg pain as a result of epideral fibrosis. We decided to change the way we did microdiscectomy and tried the SpineJet MicroResector." Dr. Hardenbrook continues, "There were many theoretical benefits we looked at when evaluating the MicroResector. We found the 4-mm cannula resulted in a much smaller annulotomy, which theoretically reduces the chance of reherniation.[3] The second benefit we found was that by using the cannula, we rarely, if ever, manipulated the nerve. This lack of manipulation theoretically results in less scarring and therefore a reduced likelihood of epideral fibrosis. We followed our patients out past a year and found that what is theorized turned out to be true: we decreased our recurrent reherniation rate and we decreased our epideral fibrosis rate. These were statistically significant improvements realized by performing microdiscectomy with the SpineJet MicroResector versus the conventional way."[2]

Dr. Hardenbrook points out that, "Recurrent problems with spine cases are so prevalent that once you start doing surgery, it tends to lead to more and more surgeries. If we can change the way we do that first procedure, which in most cases is microdiscectomy, we can really affect the cascade of procedures that follow it and I think we can absolutely change how microdiscectomy is performed, for the better."

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> **Mark R. Grubb, MD**
> **Orthopedic Spine Surgeon**
> **Northeast Ohio Spine Center**
> **Canton/Akron, Ohio**

The reported incidence of repeated surgery for recurrence ranges from 1.7 to 8 percent.[4] One recent study concluded that at short-term follow-up, recurrence of lumbar disc herniation and epideral fibrosis following miscrodiscectomy were likely related to the size of the annulotomy and nerve root manipulation.[2] This retrospective review looked at two groups of patients who underwent lumbar microdiscectomy. One group underwent traditional microdiscectomy (Group A) and the other group underwent microdiscectomy utilizing the SpineJet MicroResector (Group B). At the three-month follow-up, 13 of 34 patients in Group A (38.2%) experienced radicular pain similar to their pre-operative pain. Six of these 13 patients had recurrent disc herniation on MRI at the operative level (17.6%). One patient of 27 in Group B with post-operative radicular symptoms (2.8%) reported improvement in pain at two-month follow-up. The difference in the rate of persistent leg pain and recurrent herniation between the two groups was statistically significant ($p<0.025$).[2]

To Learn More

For more information about the HydroCision SpineJet Hydrosurgery Systems—SpineJet XL Fusion Preparation System or SpineJet MicroResector, visit the company's Web site at www.hydrocision.com; or call 1-888-747-4470.

**The opinions expressed represent the personal views of the author and do not necessarily represent the views of the Department of the Navy and Department of Defense. SpineJet,® HydroCision,® and The Leader in Hydrosurgery® are registered trademarks of HydroCision, Inc.*

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