Holmium Laser Solutions for Spine Surgery
Bibliography of Studies & Peer Reviewed Papers

The use of Holmium Laser in spine surgery is relevant for a variety of procedures, with several studies published on its additive effects in minimal invasive spine surgery. The following list presents selected publications from the last 15 years, pointing out the advantages of using Holmium Laser in spinal procedures.
# Table of Contents

Peer-reviewed publications of using Holmium Laser for spine surgery

- Laser Spine Surgery - an Overview ................................................. 3
- Reducing Pain Symptoms .............................................................. 4
- Reduced Complications ............................................................... 6
Laser Spine Surgery - an Overview

<table>
<thead>
<tr>
<th>Title</th>
<th>Publication</th>
<th>Authors</th>
<th>Year</th>
<th>Short summary of study and conclusion</th>
<th>Laser system</th>
</tr>
</thead>
</table>
› Reduced postoperative scores of subjective pain level, in both Visual Analogue Scale (VAS) score (3.6 vs 7.1 for leg pain, and 4.1 vs 5.9 in back pain) and Oswestry Disability Index (ODI) (19 vs 50) improved post-surgery. Postoperative MRI showed a notable decrease in the herniated disc size and a reduction in neural compression  
› Trans-sacral epiduroscopic laser decompression is an effective therapeutic modality | Lumenis system 20W                            |
› 45.9 % of these patients presented with positive results in postoperative examination.  
› Holmium:YAG laser considerably expands therapeutic possibilities and aids in solving the technical problems of epiduroscopy. | Lumenis system                               |
› Ho:YAG laser is effective for ablating tissues of the intervertebral foramen with a very sharp and clear border with little charring. | Lumenis system |
## Reducing Pain Symptoms

<table>
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<th>Laser system</th>
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</thead>
<tbody>
<tr>
<td>The survey of the patient received the epiduroscopic laser neural decompression</td>
<td>Korean J Pain. 26(1):27-31</td>
<td>Jo DH, Yang HJ</td>
<td>2013</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### Short summary of study and conclusion

- Effectiveness of Percutaneous laser disc decompression (PLDD) as compared with conventional surgery in 115 patients in two groups

- Roland Morris Disability Questionnaire (RMDQ) for low back pain (LBP) improved significantly after the procedure, and was similar in both laser and convectional disc decompression

- Using laser for disc decompression yields as good postoperative results in subjective pain and disability reports as conventional surgery

- Investigation of hospital data on epiduroscopic laser neural decompression (ELND) in 77 patients with Low Back Pain (LBP)

- Sixty-seven patients (87.0%) showed symptom relief in a customized subjective questionnaire 2 weeks after the procedure

- ELND is an effective treatment alternative for chronic low back and/or lower extremity pain, including lumbar disc herniation, lumbar spinal stenosis, and failed back surgery syndrome
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<th>Laser system</th>
</tr>
</thead>
<tbody>
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<td>Endoscopic transforaminal thoracic foraminotomy and discectomy for the treatment of thoracic disc herniation</td>
<td>Minim Invasive Surg. 2013;j:264105</td>
<td>Nie HF, Liu KX</td>
<td>2013</td>
<td>Presenting minimally invasive technique of removing thoracic disc herniation in 13 patients</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Reduced postoperative scores of subjective pain level, in both Visual Analogue Scale (VAS) and Roland Morris Disability Questionnaire (RMDQ) for low back pain (LBP) after 6 months after ELND procedure compared with END procedure, and improvement of low back pain (LBP) at the last follow-up

Ho:YAG laser ablation with END could produce reduced intensity pain and prolonged effect of pain relief in LSS patients.
## Reduced Complications

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<thead>
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<th>Laser system</th>
</tr>
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› Reduced postoperative scores of subjective pain level, in both Visual Analogue Scale (VAS) (2.54 vs. 6.7) and in Oswestry Low Back Pain Disability Questionnaire (ODI) (20.54 vs. 45.51)  
› Minimally invasive spinal surgery decreases pain and disability scores post treatment with no complications | N/A          |
› Cervical endoscopic discectomy has a relatively high success rate, with a low rate of mostly minor complications not connected to the laser application  
› Cervical endoscopic discectomy represents a new alternative to the treatment of cervical disc disorders | N/A          |
Risk information: The use of the Lumenis laser systems, accessories and their delivery devices in spine surgery is contraindicated for patients who are unable to receive endoscopic treatments or are intolerant to prolonged anesthesia, as well as for resection or excision of large vascularized organs. Lumenis Holmium laser systems and accessories are solely intended for use by physicians trained in the use of the Ho:YAG (2.1 μm) wavelength. Incorrect treatment settings can cause serious tissue damage. The laser should be used only on tissues that are fully observable. See the system user manual for a complete list of contraindications and risks.