Laser Use in Orthopedics & Spine
Microsurgical Solution for percutaneous pain management

- Intra-discal application on cervical spine, thoracic spine, lumbar spine
- Medial branch neurotomy for facet joints
- Lateral branch neurotomy for sacroiliac joints
EVOLVE® in PLDD

During treatment with EVOLVE®, a small volume in a closed hydraulic space (nucleus pulposus) is being vaporized to achieve a reduction of intra-discal pressure (thermic “shrinking effect”). The reduction in volume and pressure of the pathological disc induces the reduction of disc herniation and thus a reduction in nerve root compression. Furthermore, it leads to the denervation of the pain receptors (nociceptive nerves) of ingrowing nerves from dorsal ligament into annulus fibrosus. In addition to the above, pain causing facette joints can be treated in the same session to give an even better relief in a combination therapy.

The therapeutic effect of intra-discal laser therapy is based on the combination of the specific treatment characteristics. Thanks to the standardized treatment protocol and heating effect, the surgeon creates a defined shrinkage of the disc. Due to vaporization of disc liquid, intra-discal pressure decreases. The laser energy used in minimally invasive treatment strengthens the disc through laser-stimulated scarring as the collagen structure changes. Neo-vascularisation of inflamed discs can be switched off with denervation of pain receptors inside the annulus fibrosus.

Tissue interaction with LEONARDO® DUAL

The LEONARDO® DUAL platform is based on the absorption characteristics of both 980 nm and 1470 nm wavelengths, which, thanks to its outstanding interaction in water and haemoglobin and moderate penetration depth into disc tissue, enables procedures to be carried out safely and accurately, especially in proximity of delicate anatomical structures.

Microsurgical precision is guaranteed by the technical characteristics of the special PLDD laser fibers, which allow for surgical effectiveness, ease of handling, and maximum safety.

The use of flexible tactile laser fibers with core diameters of 360 micron in combination with the microsurgical PLDD enables a very precise and accurate access and intervention to sensitive areas like the cervical and lumbar disc zones on the basis of clinical therapeutic needs.

PLDD laser treatments are mostly used after non-successful conventional therapeutic options under strict MRT/CT control.
Applications

- Intra-discal application on cervical spine, thoracic spine, lumbar spine
- Medial branch neurotomy for facet joints
- Lateral branch neurotomy for sacroiliac joints

Indications

- Contained disc herniations with consecutive foraminal stenosis
- Discogenic spinal stenosis
- Discogenic pain syndroms
- Chronic facet and sacroiliac joint syndrom
- Further surgical applications, e.g. tennis elbow, calcaneal spur

Benefits of the minimally invasive PLDD procedure

- No soft tissue injury
- No risk of epidural fibrosis or scarring
- No extensive hospitalization (on outpatient basis possible)
- No general anesthesia, local anesthesia with mild sedation
- Minimal recovery time
- Lower costs

LEONARDO®

<table>
<thead>
<tr>
<th>Model</th>
<th>LEONARDO® Mini 1470 nm</th>
<th>LEONARDO® DUAL 45</th>
</tr>
</thead>
<tbody>
<tr>
<td>REF</td>
<td>SL1470nm8W</td>
<td>SL980 + 1470 nm 45 W</td>
</tr>
<tr>
<td>Wavelength</td>
<td>1470 nm</td>
<td>980 nm and 1470 nm</td>
</tr>
<tr>
<td>Power</td>
<td>8 W (1470 nm)</td>
<td>max. 45 Watt (1470 nm / 15 Watt + 980 nm / 30 Watt) separately adjustable</td>
</tr>
<tr>
<td>Fiber diameter</td>
<td>≥ 360 μm</td>
<td>≥ 360 μm</td>
</tr>
<tr>
<td>Aiming beam</td>
<td>635 nm, max. 4 mW</td>
<td>532 nm and 635 nm, green 1 mW, red 4 mW, user controlled intensity</td>
</tr>
<tr>
<td>Treatment mode</td>
<td>CW, Pulse Mode (optional), ELVeS® Signal</td>
<td>CW, Pulse Mode, ELVeS® Signal, ELVeS® Segment, Derma Mode</td>
</tr>
<tr>
<td>Pulse duration / break</td>
<td>0.01 – 60 sec. / 0.01 – 60 sec.</td>
<td>0.01 – 60 sec / 0.01 – 60 sec</td>
</tr>
<tr>
<td>Power supply</td>
<td>110 - 240 VAC, 50 - 60 Hz (7.2 VDC @ 36 W)</td>
<td>110 - 240 VAC, 50 / 60 Hz, 450 VA</td>
</tr>
<tr>
<td>Batteries</td>
<td>Li-ion batteries</td>
<td>–</td>
</tr>
<tr>
<td>Dimensions (H × W × D)</td>
<td>6.0 cm × 9.0 cm × 21.5 cm</td>
<td>approx. 28 cm × 37 cm × 9 cm</td>
</tr>
<tr>
<td>Weight</td>
<td>900 g</td>
<td>approx. 8.5 kg</td>
</tr>
</tbody>
</table>

All laser sets incl. 3 safety goggles, foot switch, interlock connector, power cord and manual in a carrying case.

Kit

5032008930 PLDD Kit 360 / 1B / 150 Y-Click Adapter, IC
Contact us

to learn more about a whole new world of minimally invasive laser therapies

- Venous diseases
- Hemorrhoids and fistulas
- Wide spectrum of ENT diseases
- BPH and urological tumors
- Uterine tumors
- Cervical and lumbar disc herniation
- Lung metastases and bronchial tumors

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