ELVeS® Radial®
Minimally invasive laser therapy of venous insufficiency

“2ring - Evolution continues”

- Great saphenous vein
- Small saphenous vein
- Tributary veins
- Perforators
- Recurrences
The ELVeS® Radial® procedure – a unique solution for treatment of venous incompetence

A brief history of evolution
Venous reflux disease is a common condition. Up to 55% of women and 45% of men suffer from symptoms such as fatigue, pain and swelling of lower limbs. Primary causes include congenital connective tissue weakness, hormonal changes and long periods of standing and sitting. Impaired veins can be more than just a cosmetic problem. Left untreated, venous reflux disease can progress to skin changes, discoloration, inflammation and even venous ulcer.

As a global pioneer in laser technique, biolitec® introduced the first medical 1470 nm diode laser in 2006 and the Radial® fiber in 2008 to improve the outcome of endoluminal laser use.
Evolution continues

The present and the future demand even more intelligent solutions. Our struggle to create an outstanding system regarding Safety and Flexibility for the endoluminal treatment of varices lead us to the 2ring technique.

Why 2ring?

Even more flexibility in your daily routine

Results by means of using a thermocamera on the cow foot model and ELVeS® Radial® 2ring Fiber.

The ELVeS® Radial® 2ring fiber divides the laser power into two equal portions of 50 % strength. For example, the 12 W generated by the laser is divided into two rings with 6 W each. This means that the vein irradiated by the first ring is raised from body temperature to approx. 90 °C. Through the distance of approx. 5 mm between the two rings and the constant movement of the fiber at a rate of approx. 5–7 s/cm, the vein can cool down slightly. The second ring will then raise the temperature to approx. 120 °C. The energy selected for each vein remains the same. The second ring essentially ‘closes the door behind itself’.
**ELVeS® Radial® 2ring**

The 2-phase radiation with ELVeS® Radial® 2ring is the best choice for a perfect outcome, not only for experienced physicians, but also for beginners who ask for an efficient, safe and easy-to-use technique.

**Splitting the laser power in two phases leads to an effective closure of the vein with**

- Less energy density of each ring
- Perfect centration of the fiber tip by pre-shrinking effect
- Optimal homogenous radiation to the vessel wall even for large diameter >15 mm
- Easier pullback technique

**ELVeS® Radial® 2ring slim**

The ELVeS® Radial® 2ring slim fiber provides the easiest access to the veins. It is characterized by a very small outer diameter of only 1.2 mm. When using commercially available 16 G IV catheters, the fibers can be introduced without the need for expensive insertion instruments.

The simple use of several of these standard cannulas makes access much easier – even for highly convoluted or duplicated veins. Also when treating perforating veins or recurrences, access is easily facilitated.

**Applications**

**ELVeS® Radial® procedure**

- Great saphenous vein
- Small saphenous vein
- Tributary veins
- Perforators
- Recurrences

* Only to be used with 1470 nm

**ELVeS® Radial®**

Original quality
Why Fusion®?

Because quality matters

biolitec® has always placed high standards on safety. The distal quartz caps and laser fibers of biolitec® are therefore welded together using the Fusion® technology. This means we can absorb the highest tensile forces on the probe through the combined welding and bonding (see diagram). The pure bonding meets the applicable standard for these products (DIN EN ISO 10555-1 Annex B) but not the high demands of modern minimally invasive laser medicine. biolitec® has developed the Fusion® procedure and thus set worldwide standards.

On the right are the standard tensile forces that a catheter must meet. On the left, you can see the tensile strength achieved through the Fusion® technology (internal biolitec® tests).

The ELVeS® Radial® 2ring procedure – how does it work?

The ELVeS® Radial® 2ring procedure is performed on an outpatient basis under ultrasound guidance and Tumescent Local Anesthesia (TLA). However, some centers prefer to work without TLA using a sensory femoral nerve block or a mild sedation with some reported advantages (see below). Following percutaneous entry into the saphenous vein, the ELVeS® Radial® 2ring fiber is advanced towards the saphena-femoral junction. The laser procedure is carried out along the entire length of the incompetent vein under continuous pull back of the ELVeS® Radial® 2ring fiber. The complete treatment takes about 30 minutes; patients can return to normal activities immediately. Bi-lateral ELVeS® Radial® 2ring treatments or combined GSV and SSV procedures can be performed during the same session.

We use ELVeS® Radial® and perform procedures without tumescent anaesthesia and our favourite protocol is the use of the quick Sensory Femoral Nerve Block. This gives a better US image enabling real time visualization of the vein closure, which improves results as we can respond according to the individual anatomy. Patients report none or little discomfort and less post procedure pain and side effects.
The ELVeS® Radial® 2ring procedure offers the optimum treatment solution for an effective and gentle endovenous laser therapy and is setting new standards for patients and users. Performing an endovenous laser therapy has never been more convenient. Delivering homogenous laser emission based on a unique and patented distal design, ELVeS® Radial® 2ring minimizes the risk of vein perforations and assures high echogenic visibility. The 1470 nm laser energy is preferentially absorbed in the intracellular water of the vein wall and in the water content of blood. The irreversible photo-thermal process induced by the laser energy results in a complete occlusion of the treated vein. The ELVeS® signal software mode guides the user throughout the procedure. So individually addressable energy deposition for any length and diameter of the vein is facilitated.

The ELVeS® Radial® 2ring procedure is ...  
___ Fast  
___ Safe  
___ Homogenous  
___ Effective  
___ Evidence-based

“With the available results and patient/physician preferences it can be said that conventional high ligation plus stripping of the incompetent saphenous vein is no longer the gold standard treatment choise.  
Suat Doganci and Ufuk Demirkilic, Vascular Surgery Published online 04, April, 2012 ISBN 978-953-51-0328-8

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**Fibers**

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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

All fibers are free of latex and DEHP. Our fibers are single use products (unless otherwise indicated) delivered sterile for immediate use.

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