

# Literature

PHYSIOMED ELEKTROMEDIZIN AG

ADDRESS  
Hutweide 10  
91220 Schnaittach/Laipersdorf  
Germany

PHONE +49 (0) 91 26 / 25 87 -0  
FAX +49 (0) 91 26 / 25 87 -25  
E-MAIL [info@physiomed.de](mailto:info@physiomed.de)  
WEB [www.physiomed.de](http://www.physiomed.de)

This article should be cited as follows:

JAHN, S., SCHOPPE, B. AND A. REIBHAUER. Effect of treatment with low-intensity and extremely low-frequency electrostatic fields (Deep Oscillation®) on breast tissue and pain in patients with secondary breast lymphoedema. J Rehabil Med 40:645-650 (2008).

Institution:

Charité – Universitätsmedizin Berlin, Dept. of Physical Medicine, Charité Campus Mitte, Berlin, Germany

---

## Abstract

---

### BACKGROUND AND RATIONALE

To investigate symptoms and functional impairment in women with secondary lymphoedema of the breast following surgical treatment and to assess the therapeutic benefit of treatment with low-intensity and extremely low-frequency electrostatic fields (Deep Oscillation®), supplementing manual lymphatic drainage.

### METHODS

Twenty-one patients were randomized either to the treatment group (n=11): 12 sessions of manual lymphatic drainage supplemented by Deep Oscillation®, or to the control group (n=10): manual lymphatic drainage alone. Assessment included subjective pain and swelling evaluation, range of motion of the shoulder and the cervical spine, and analysis of breast volume using a 3D measuring system.

### RESULTS

Patients had high pain and swelling scores at baseline. Shoulder mobility was impaired in all patients; restriction of cervical spine mobility was common at baseline and declined further in the control group. Deep Oscillation® resulted in significant pain reduction in the treatment group. The subjective reported reduction of swelling in both groups was confirmed objectively by 3D measurement only in the treatment group.

### CONCLUSION

Additional Deep Oscillation® supplementary to manual lymphatic drainage can significantly enhance pain alleviation and swelling reduction in patients with secondary breast lymphoedema compared with manual lymphatic drainage alone.

### Key words

breast cancer – deep oscillation therapy – lymphatic drainage – pain – swelling.