

**ELECTROMAGNETIC DIATHERMIA: A LYMPHOSCINTIGRAPHIC  
AND LIGHT REFLECTION RHEOGRAPHIC STUDY OF LEG LYMPHATIC  
AND VENOUS DYNAMICS IN HEALTHY SUBJECTS**

**Ph. van der Veen, F. Kempnaers, S. Vermijlen, Chr. Van Waeyenberghe,  
E. Kerckhofs, A. Bossuyt, P. Van Den Brande, P. Lievens**

Departments of Rehabilitation Research (PhvdV,FK,SV,EK,PL), Nuclear Medicine (ChrVW,AB),  
and Vascular Surgery (PDB), Vrije Universiteit Brussel, Belgium

*ABSTRACT*

*Because electromagnetic diathermia (ED) has been reported to reduce lymphedema, we opted to examine the effects of ED on leg venous and lymph dynamics in healthy subjects. To examine lymph flow, we performed lymphangioscintigraphy (LAS) in 10 subjects without leg edema and used static images at the injection site and at the inguinal region for "control data." Later, we applied ED (2450 MHz, 200W) and then repeated the LAS using the same dosage and volume. Differences between the first and second sessions were examined using two way ANOVA and the differences between the scores with or without ED were analyzed by a Student's t-test. To examine venous flow, we first tested the left lower leg of 15 healthy subjects on two occasions using light reflection rheography (LRR). Venous refill time was recorded after each individual performed 10 dorsiflexions with the left foot on three occasions with an interval of 3 minutes between each recording. Thereafter, 20 minutes ED (2450 MHz, 200W) was applied and using the same protocol venous refill time was recorded and repeated after an interval of one week. The 50% level and the declination angle of the refill time was determined and differences between the experimental and control groups analyzed by ANOVA.*

*The results between the first and second sessions were consistent and reproducible with or without the electromagnetic application, with no change of radiotracer transport from the injection site or arrival at the inguinal nodes. There was also a high correlation between the scores for the 50% level and declination angle ( $r=0.97$ ) after LRR. Thus, after ED there was an accelerated venous refill time. In conclusion, after ED there was no increase in lymph flow but there was accelerated venous return.*