

## **ARE PERIPHERAL LYMPHATICS DAMAGED BY HIGH PRESSURE MANUAL MASSAGE?**

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### *ABSTRACT*

*Massage of the foot in men and the hindpaw in dogs was performed by applying external pressures of 70-100 mmHg for a period of one, three, five, and ten minutes with a frequency of 25 strokes per minute. This protocol was performed on individuals without edema, on dogs with experimental lymphedema and men with post-thrombotic venous edema.*

*After ten minutes of forceful massage, focal damage of lymphatics was present. In a group of dogs with lymphedema and men with post-thrombotic venous edema, the alteration of lymphatics was greater than in normal individuals and evident only after 3 to 5 minutes of massage. At first, the forceful massage affected the endothelial lining of the initial lymphatics. Alterations of lymphatic collectors were visible later. The fluid in lymphedema was translocated by massage using high pressure from the interstitium into the lumen of lymphatics by means of the open junctions and by artificial cracks that develop from injury to the lymphatic wall.*

*Vigorous massage in lymphedema also produces loosening of subcutaneous connective tissue, formation of large tissue channels and release of lipid droplets that enter the lymphatics. By this mechanism, massage helps reduce the amount of fat cells in the lymphedematous leg.*