

**Title:**

Low-level laser therapy: an adjunct therapy for the treatment of breast cancer related arm lymphoedema.

**Abstract:**

*Objective:* To determine parameters of low-level laser therapy (LLLT) which provide clinically significant changes in breast cancer related lymphoedema (BCRL).

*Method:* An audit of 22 women with BCRL treated with LLLT as an adjunct to conservative treatment within a private physiotherapy clinic setting. Characteristics of BCRL were a clinical presentation of soft pitting oedema in the medial aspect of the forearm, with palpable fibrotic/thickening changes. Mean age was 60.1 years ( $\pm 13.78$ ) with onset of BCRL at 1.93 years ( $\pm 3.95$ ) and a mean duration of 3.29 years ( $\pm 3.14$ ). The Riancorp LTU-904 provided an average LLLT dose of 4.42J ( $\pm 0.81$ J) with manual lymphatic drainage treatment which may have included compression therapy between sessions.

*Results:* During LLLT treatment, clinical changes in lymphoedema presentation were reflected by significant changes in the Miller Palpation rating of oedema ( $p < 0.5$ ). Other measures did not reach statistical significance but women reported reduction in the presence of ache, heaviness and tightness. Limb circumference and bioimpedance measurements did not change following treatment for the cohort overall but individual women had sustained changes over time. Correlations between dosage and clinical parameters were investigated to identify a clinical protocol for use in a randomized controlled study.

*Conclusions:* LLLT may be a useful adjunct to conventional physiotherapy techniques for lymphoedema treatment in symptom reduction and softening of oedema. From the data collected, it is not clear if there is a specific set of parameters and dosage of LLLT which may provide objective improvement in BCRL.