

Effect of Therapeutic Massage on Peripheral Blood Flow as Assessed by Skin Temperature Measures in the Neck and Shoulders

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Background/Significance: Blood flow changes are thought to be a primary mechanism responsible for the broad range of therapeutic effects reported for massage therapy. Increased blood flow to damaged or painful tissues improves the delivery of metabolic fuels, waste removal, and gas exchange, thus promoting healing. Traditional methods of assessing blood flow are difficult and have produced equivocal results. This study utilized Dynamic Infrared Thermography to assess non-contact skin temperature in a constant temperature thermal chamber to investigate the effect of therapeutic massage on peripheral blood flow in the neck and shoulders.

Methods: A repeated measures cross-over experimental design was utilized; the independent variable was treatment condition (massage, light touch, control). Seventeen healthy volunteers (8 males/9 females; age = 23.29 ± 3.06) received one 20 minute neck and shoulder session for each treatment condition. The dependent variable was mean skin temperature in 15 regions measured at 6 time points (pre-test and 15, 25, 35, 45 and 60 minutes post-test) for each treatment condition.

Results: Massage produced significant temperature elevations in 5 regions: anterior upper chest ($P = 0.012$); posterior neck ($P = 0.001$); upper back ($P = 0.007$); posterior right arm ($P = 0.018$); and middle back ($P = 0.031$). Massage therapy produced significant increases in temperature over time, compared to the other conditions, in the anterior upper chest, and posterior neck, upper back, right arm, and the middle back. Additionally, temperatures remained elevated 60 minutes post- massage treatment.

Conclusions: The temperature changes indicate corresponding alterations in peripheral blood flow in the massaged areas. Interestingly, temperature increases in adjacent non-massaged areas were also found. Current work is underway to correlate these peripheral blood flow changes with measures of arterial blood flow measures after massage treatment.