The acute effects of myofascial massage on lumbar peripheral blood flow compared with kinesio taping: A pilot study

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BACKGROUND: Therapeutic interventions for low back pain have often been associated with increasing blood flow and improving the function of the paraspinal musculature [1]. Myofascial massage and kinesio taping have been suggested to increase blood flow [2-3], and are becoming increasingly popular. However, limited research has been conducted into the underlying physiological effects of these types of treatments. The purpose of this study was to compare the acute effects of Myofascial Massage (MM) and Kinesio Tape (KT) on blood flow at the paraspinal musculature.

METHODS: Design: A randomised control trial. The University of Kent's School of Sport and Exercise Sciences Research and Ethics Committee approved this study. Participants: Forty-four healthy participants (18 male and 26 female) with an average age of 26 years (± SD 7) were randomly assigned into three groups: KT, MM and a sham Transcutaneous Electrical Nerve Stimulation, (TENS), control group. Protocol: Paraspinal blood flow of oxygenated haemoglobin (O_2Hb), de-oxygenated haemoglobin (HHb), total haemoglobin (tHb) and tissue oxygen saturation (TSi) was measured at the L3 vertebral level, using Near Infrared Spectroscopy (NIRS), before and after a 30 minute treatment of MM, KT or sham TENS to the paraspinal musculature. Body Mass Index (BMI), skinfold measurement and perceptions of Pain Pressure Threshold (PPT) were also taken before and after treatments.

RESULTS: A one way ANOVA indicated a significant differences between groups for O_2Hb [$F(2\text{-}41) = 41.6$, $P<0.001$], HHb [$F(2\text{-}41) = 14.6$, $P<0.001$] and tHb [$F(2\text{-}41) = 42.2$, $P<0.001$]. Post hock tests indicated that MM was significantly different from the KT and the control treatments ($P<0.001$), for changes in O_2Hb, HHb, and tHb. There were no differences in blood flow variables between the KT and control groups. Changes in TSi and PPT measurements did not differ between groups. There were no significant differences for BMI [$F(2\text{-}41) = 0.049$ $P = .953$], skinfold measurements [$F(2\text{-}41) = 2.471$, $p = 0.97$], and PPT [$F(2\text{-}41) = 2.69$, $p = 0.08$] between groups.

CONCLUSIONS: This study demonstrated that MM increases peripheral blood flow at the paraspinal muscles in healthy participants compared to KT and sham TENS. The change in blood flow had no impact on pain perception in the asymptomatic population group. The confounding influence of adipose thickness on NIRS measurements was not a factor in this study.

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