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## Dan Robbins, Priya Yoganathan and Mark Goss-Sampson

The influence of whole body vibration on the central and peripheral cardiovascular system. *Clin Physiol Funct Imaging* (2013)

### Abstract:

The purpose of this study was to investigate the physiological changes of the cardiovascular system in response to whole body vibration during quiet standing and identify whether there is a greater influence on the central or peripheral cardiovascular system. Twenty healthy participants (12 male and 8 female) were assessed over two separate testing sessions for changes in peripheral skin temperature, peripheral venous function, blood flow velocity in the dorsalis pedis artery, blood pressure and heart rate during quiet standing with 40 Hz 19 mm synchronous vibration. Vibration exposure totalled 5 min in 1 min increments with 5 min recovery during each testing session. There were no significant changes in heart rate, blood pressure or peripheral skin temperature. Significant results were obtained for blood flow velocity with increases from  $0.5 \pm 0.2$  cms<sup>1</sup> at baseline to  $1 \pm 0.2$  cms<sup>1</sup> during vibration, returning to baseline levels during the recovery period. Due to the absence of changes in heart rate, blood pressure or lower leg and foot temperature, the change in blood flow velocity can be attributed to changes in peripheral vascular function. The results suggest a high level of sensitivity of the peripheral vascular system to vibration exposure; therefore, further studies should be completed to ascertain the physiological mechanisms underlying the effects of vibration on the peripheral vascular system.