Abstract
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EXERCISE TO IMPROVE BLOOD FLOW AND VASCULAR HEALTH IN THE LOWER LIMBS OF PARAPLEGICS (131 pp.)

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INTRODUCTION: After incurring a spinal cord injury a paraplegic undergoes drastic and detrimental vascular remodeling which leads to numerous health consequences. Many rehabilitation modalities are aimed at increasing blood flow to the paralyzed lower limbs in this population to counteract these co-morbidities. Passive limb movement and upper body exercise may be two modalities that could aid this population. **PURPOSE:** The purpose of this study was to quantify the effectiveness of repeated bouts of passive limb movement and 10 minutes of upper body exercise to increase lower limb blood flow in paraplegics. **METHODS:** 9 paraplegics with a complete spinal cord injury between the 3rd to 11th thoracic vertebrae were recruited for the study. Subjects underwent 5 one minute bouts of unilateral lower body passive limb movement interspaced with 1 minute recovery. They also completed 10 minutes of upper body exercise with and without the addition of passive limb movement. **RESULTS:** During the repeated bouts of passive

limb movement a repeatable hyperemic response was observed. The bouts resulted in blood flow increases of 58, 52, 57, 50 and 63%. For the upper body exercise a blood flow increase of 42% was observed and also 28% increase with the addition of the passive limb movement.

CONCLUSION: Repeated bouts of passive limb movement, when interspaced with a one minute recovery period, has the ability to induce a sustained hyperemic response. While not statistically significant, the increases in blood flow observed during the upper body exercise may still have a clinical application.