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DETERMINING THE INFLUENCE OF LIMB AND GENDER ON BLOOD
PRESSURE REGULATION AND FUNCTIONAL SYMPATHOLYSIS DURING THE
APPLICATION OF NEGATIVE PRESSURE (125 pp.)

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Lower body negative pressure (LBNP), which unloads cardiopulmonary and arterial baroreceptors, is a widely used method for studying various cardiovascular responses to hemorrhaging and orthostatic stress. The purposes of this investigation were to validate the use of LBNP as a research technique for studying the human cardiovascular responses to hemorrhaging and to use LBNP in combination with a dynamic handgrip exercise protocol to determine if gender differences exist in functional sympatholysis. Twenty healthy college-aged male (N = 10) and female (N = 10) participants visited the exercise science laboratory on one occasion. For the first part, participant's whole left arm, whole left leg, and a portion of their left leg volume-matched to their whole arm was subject to two stages of negative pressure (-30 mmHg and -60 mmHg) lasting 5 minutes each. For the second part, participants performed 3 minute stages of dynamic handgrip exercise at 15%, 30%, and 45% of their max voluntary contraction, with one minute rest intervals taken between each stage, then repeated this protocol again while subject to -30 mmHg LBNP. Responses in heart rate, stroke volume, mean arterial pressure, brachial blood flow, brachial diameter, and forearm muscle oxygenation were continuously recorded. There were minimal differences observed in the cardiovascular responses to negative pressure when applied to

the upper body versus when applied to the lower body, and there were no significant gender differences in response to LBNP at rest or during exercise.