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Inter-leg difference in blood pressure is related to the ankle-brachial index in healthy individuals

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Increased inter-arm difference (IAD) in systolic blood pressure (BP) is linked to cardiovascular and peripheral vascular disease, arterial stiffness, and premature mortality. Previous research has determined that exercise induces IAD (e.g., eIAD). Recent studies on inter-leg difference (ILD) in systolic BP and pulse wave velocity have added a new dimension to this concept. **PURPOSE:** To examine the relationship between resting inter-limb differences and eIAD. **METHODS:** Following informed consent, participants completed a ten-minute rest and IAD, ankle-brachial index (ABI), heart rate, central and peripheral pressure were attained using standardized procedures. Subsequently, each participant completed a 30-minute acute bout of aerobic exercise (50% VO_2peak) on a cycle ergometer and eIAD was measured. **RESULTS:** Fifty-nine individuals completed all of the requirements of the study. Resting IAD (5±4 mmHg) was lower than ILD and (10±9 mmHg; $P<0.05$) and eIAD (9±7 mmHg; $P<0.05$), respectively. ILD was positively correlated with right arm systolic and diastolic BP (.293 and .285, respectively; $P<0.05$), central diastolic BP (.259; $P<0.05$), left leg systolic BP (.323; $P<0.05$), heart rate (.355; $P<0.05$), and double product (.390; $P<0.05$). ILD was negatively correlated with right-sided and overall ABI (-.580 and -.631, respectively; $P<0.05$). An equivocal relationship existed between ILD and eIAD (.259; $P=0.055$). No relationship existed between ILD and IAD (.075; $P=0.569$). **CONCLUSION:** Inter-leg blood pressure difference may not be related to resting or exercise-mediated IAD. When non-invasively screening for peripheral arterial disease, inter-leg blood pressure difference may be a simple and relevant measurement for consideration. The clinical value and implication of inter-leg blood pressure difference remains unclear, however, future studies are warranted particularly in light of new (i.e., four-limb simultaneous) technologies.