

**Do Racial and Sex Differences Exist in Central and Peripheral Blood Pressure and Vascular Stiffness in Otherwise Healthy Young Men and Women?
Effects of Oral Capsaicin**

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Abstract:

INTRODUCTION: Cardiovascular disease (CVD) is the leading cause of morbidity and mortality, and most pervasive among non-Hispanic Black/African Americans (AA). Young males are also at greater risk of CVD than age-matched females. Central blood pressure (cBP) and vascular stiffness are relatively novel functional indicators of CVD risk, but whether racial and sex differences exist in these parameters, and heart rate variability (HRV), a non-invasive index of cardiac autonomic nervous activity, is unknown. **PURPOSE:** To determine racial and sex differences in central and peripheral BP and vascular stiffness between young healthy AA and CA individuals, under the effects of oral capsaicin, and whether HRV might explain such differences. **METHODS:** 27 college-aged males (AA: n=8, 19±1 yrs. vs. CA: n=9, 21±2 yrs.) and females (AA: n=4, 20±1 yrs. vs. CA: n=6, 19±1 yrs.) were assessed for peripheral systolic (SBP) and diastolic (DBP) BP, central systolic (cSys), diastolic (cDia) BP, augmentation index normalized to 75 beats/min (Aix@75), and pulse wave velocity (PWV) using an automated oscillometric sphygmomanometer. Time-domain indices of HRV, root mean square of successive differences (RMSSD) and standard deviation of n-n intervals (SDNN) were obtained via the Elite HRV monitor and mobile app. Subject measures were assessed before and after the ingestion of capsaicin. **RESULTS:** In SBP of AA and CA males and females, there were significant interactions of treatment *sex $p=0.028$, $\eta^2=0.201$ and treatment*race $p=0.033$, $\eta^2=0.191$. In these cases, in response to capsaicin females SBP was reduced whereas males increased modestly; for racial differences the AA SBP was reduced but the CA were modestly increased. The same trends existed in cSys of AA and CA males and females. In Aix@75 of AA and CA males and females the interaction of treatment*race approached significance $p=0.082$, $\eta^2=0.131$. No other significant effects were noted in terms of treatment, sex, or race. **CONCLUSION:** Peripheral and central Systolic blood pressures were significantly reduced in women and AAs in response to dietary capsaicin, whereas men and CAs tended to increase modestly. These results do not appear to be due to differing cardiac autonomic activity.