Sodium Consumption and Arterial Stiffness in Women 6 Months- 3 Years After Delivery

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BACKGROUND

- In earlier studies, restriction of dietary sodium consumption decreased arterial stiffness.
- This effect was partially due to the blood pressure lowering effect of sodium restriction.
- Our preliminary data showed sodium consumption was not associated with blood pressure in women 6 month-3 years after delivering a singleton infant.
- The relationship between sodium consumption and arterial stiffness in the same period soon after delivery is unclear.
- Further investigation is needed to understand relations of modifiable dietary habits and sensitive indices of vascular health in women soon after delivery.

PURPOSE

- Our purpose was to determine whether self-reported dietary sodium consumption was related to arterial stiffness in women 6 months to 3 years after giving birth.
- We tested for effects of age and race/ethnicity on relations of sodium and arterial stiffness.
- We hypothesized that higher sodium consumption would be associated with higher arterial stiffness and that this result would persist after adjustment.

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METHODS (continued)

- We used a validated scored sodium questionnaire (SSQ) to obtain values of sodium consumption.
- Carotid and femoral waveforms were determined using applanation tonometry and SphygmaCor software.
- Pulse wave velocity was found by dividing the distance between carotid and femoral waveforms by the R wave of a simultaneously recorded ECG.

Figure 1: Applanation tonometry used to estimate pulse wave velocity.

- We examined associations between pulse wave velocity and sodium consumption using robust linear regression analyses.
- We used age and race as adjustment variables.

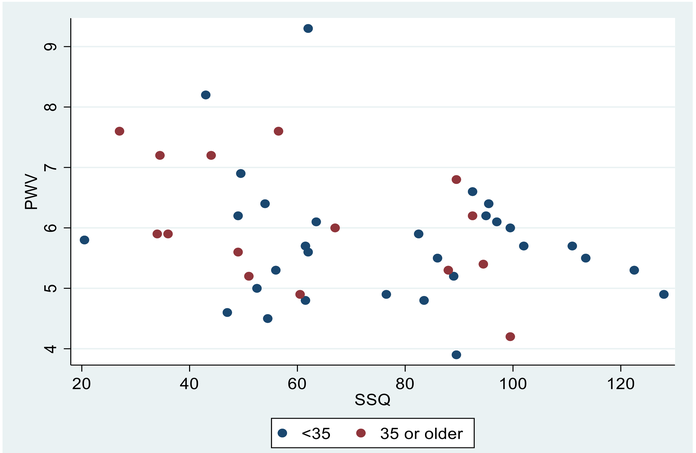
Table 1. Description of participant characteristics (n=45).

	Mean ± SE or %
Age (yrs)	33 ± 1
BMI (kg/m²)	26.8 ± 0.9
Race (%) White Black Asian	 77 21 2
APO (%)	38
PWV (m/s**)**	5.9 ± 0.2
SSQ (range:0-215)	73 ± 4

Table Legend. BMI: Body mass index; APO: Adverse Pregnancy Outcome; PWV: Pulse Wave Velocity; SSQ: scored sodium questionnaire results.

RESULTS (continued)

Figure 2. Scatterplot of PWV and SSQ



Legend. Blue circles: age <35; red circles: age ≥35 years. SSQ was negatively associated with PWV.

Table 2. Significant negative correlation between PWV and SSQ. Significance goes away when we adjusted for age and race in an analysis robust to outliers.

	Beta ± SE	p-value
SSQ *Unadjusted*	-0.012 ± 0.005	0.04
SSQ *Age and Race Adjusted*	-0.011 ± 0.007	0.11

CONCLUSIONS

- SSQ score and PWV were unexpectedly negatively associated in an unadjusted analysis.
- When age and race were adjusted for in a robust analysis, the significance was lost but the general association persisted.
- Arterial stiffness increases with age, so adding age to our model attenuated the association of sodium consumption with PWV. Further work is needed to determine the physiology underlying the observed association.