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## **Effects of Low-Sodium Diet vs. High-Sodium Diet on Blood Pressure, Renin, Aldosterone, Catecholamines, Cholesterol, and Triglyceride (Cochrane Review)**

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### Background

The question of whether reduced sodium intake is effective as a health prophylaxis initiative is unsolved. The purpose was to estimate the effects of low-sodium vs. high-sodium intake on blood pressure (BP), renin, aldosterone, catecholamines, and lipids.

### Methods

Studies randomizing persons to low-sodium and high-sodium diets evaluating at least one of the above outcome parameters were included. Data were analyzed with Review Manager 5.1.

### Results

A total of 167 studies were included. The effect of sodium reduction in: (i) Normotensives: Caucasians: systolic BP (SBP)  $-1.27$  mm Hg (95% confidence interval (CI):  $-1.88, -0.66$ ;  $P = 0.0001$ ), diastolic BP (DBP)  $-0.05$  mm Hg (95% CI:  $-0.51, 0.42$ ;  $P = 0.85$ ). Blacks: SBP  $-4.02$  mm Hg (95% CI:  $-7.37, -0.68$ ;  $P = 0.002$ ), DBP  $-2.01$  mm Hg (95% CI:  $-4.37, 0.35$ ;  $P = 0.09$ ). Asians: SBP  $-1.27$  mm Hg (95% CI:  $-3.07, 0.54$ ;  $P = 0.17$ ), DBP  $-1.68$  mm Hg (95% CI:  $-3.29, -0.06$ ;  $P = 0.04$ ). (ii) Hypertensives: Caucasians: SBP  $-5.48$  mm Hg (95% CI:  $-6.53, -4.43$ ;  $P < 0.00001$ ), DBP  $-2.75$  mm Hg (95% CI:  $-3.34, -2.17$ ;  $P < 0.00001$ ). Blacks: SBP  $-6.44$  mm Hg (95% CI:  $-8.85, -4.03$ ;  $P = 0.00001$ ), DBP  $-2.40$  mm Hg (95% CI:  $-4.68, -0.12$ ;  $P = 0.04$ ). Asians: SBP  $-10.21$  mm Hg (95% CI:  $-16.98, -3.44$ ;  $P = 0.003$ ), DBP  $-2.60$  mm Hg (95% CI:  $-4.03, -1.16$ ;  $P = 0.0004$ ). Sodium reduction resulted in significant increases in renin ( $P < 0.00001$ ), aldosterone ( $P < 0.00001$ ), noradrenaline ( $P < 0.00001$ ), adrenaline ( $P < 0.0002$ ), cholesterol ( $P < 0.001$ ), and triglyceride ( $P < 0.0008$ ).

### Conclusions

Sodium reduction resulted in a significant decrease in BP of 1% (normotensives), 3.5% (hypertensives), and a significant increase in plasma renin, plasma aldosterone, plasma adrenaline, and plasma noradrenaline, a 2.5% increase in cholesterol, and a 7% increase in triglyceride.

This article is based on a Cochrane Review published in the Cochrane Database of Systematic Reviews (CDSR) 2011, Issue 11, DOI: 10.1002/14651858.CD004022.pub3 (see [www.thecochranelibrary.com](http://www.thecochranelibrary.com) for information). Cochrane Reviews are regularly updated as new evidence emerges and in response to feedback, and the CDSR should be consulted for the most recent version of the review.