

Clinical Inquiries

FROM THE FAMILY PRACTICE INQUIRIES NETWORK

Does a Low-Sodium Diet Reduce Blood Pressure?

Searchable Question

In patients with hypertension without comorbidity, does a low-sodium diet reduce blood pressure and decrease morbidity or mortality?

Evidence-Based Answer

Reducing sodium intake does lead to a slightly lower average blood pressure. However, no evidence from controlled trials proves that reducing sodium intake decreases morbidity or mortality, or proves that modest sodium restriction is harmful. [Strength of recommendation: A, based on meta-analyses of randomized controlled trials (RCTs) with disease-oriented outcomes]

Evidence Summary

A recent Cochrane review¹ summarized the data from many RCTs studying the effect of sodium restriction on blood pressure. The duration of the trials ranged from four days to one year, with an average duration of one month. Sodium-restricted diets led to significant reductions in systolic and diastolic blood pressures, with a greater effect in blacks than in whites (*see accompanying table*).

Another recent Cochrane review² of trials lasting at least six months showed that patients randomized to dietary advice to reduce sodium intake did not have lower cardiovascular morbidity or mortality than control patients (*see accompanying table*). However, the total number of cardiovascular events in the trials was small (e.g., only 17 deaths occurred). The only significant benefit from sodium restriction was that patients who had discontinued antihypertensive medications were more likely than control patients to avoid restarting medications.

Effectiveness of Sodium Reduction on Lowering Blood Pressure and Other Patient-Oriented Outcomes

<i>Review</i>	<i>Number of trials</i>	<i>Outcomes</i>
Jurgens, et al., 2003 ¹	58 trials in mostly white patients, and eight trials in mostly black patients	<p>Trials in mostly white patients: SBP decreased an average of 4.2 (range: 3.2 to 5.1) mm Hg; DBP decreased an average of 2.0 (range: 1.3 to 2.5) mm Hg.</p> <p>Trials in black patients: SBP decreased an average of 6.4 (range: 3.7 to 9.1) mm Hg; DBP decreased an average of 2.0 (range: 0.8 to 4.7) mm Hg.</p>
Hooper, et al., 2003 ²	Five trials in untreated patients, and three trials in treated patients	No differences in mortality or cardiovascular morbidity. Previously treated patients were more likely to avoid restarting antihypertensive agents when counseled to reduce sodium intake.
Kumanyika and Cutler, 1997 ³	20 trials lasting at least six months	No adverse physical, behavior, or quality-of-life effects noted after modest sodium reduction.

SBP = systolic blood pressure; DBP = diastolic blood pressure.

Information from references 1 through 3.

Regarding potential harms from sodium restriction, a 1997 systematic review³ found no evidence that modest sodium restriction (i.e., total daily sodium intake of 2.4 g or less) is harmful. The first Cochrane review found a 5 percent increase in total and low-density lipoprotein cholesterol levels in patients randomized to more drastic sodium restrictions (i.e., average daily reduction of more than 4 g compared with control patients).

Recommendations from Others

The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure⁴ and the World Health Organization's International Society of Hypertension⁵ recommend advising patients with hypertension to limit their daily sodium intake to approximately 2.4 g.

Clinical Commentary

I counsel my patients with hypertension to reduce their daily sodium intake to around 2 g to help reduce and control their blood pressure, and I offer them the hope of being able to discontinue antihypertensive medications as a result.

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Clinical Inquiries provide answers to questions submitted by practicing family physicians to the Family Practice Inquiries Network (FPIN). Members of the network select questions based on their relevance to family medicine. Answers are drawn from an approved set of evidence-based resources and undergo peer review. The strength of recommendations and the level of evidence for individual studies are rated using criteria developed by the Evidence-Based Medicine Working Group (http://www.cebm.net/levels_of_evidence.asp).

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