

Does sodium reduction affect mortality?

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Clinical question

Does sodium restriction reduce mortality from cardiovascular disease (CVD)?

Bottom line

Meta-analyses suggest that moderate sodium reduction (from 3900 mg to 3000 mg a day) can reduce CVD events, but the effect on mortality is unclear. More evidence with clinical outcomes is required to better define optimal levels of sodium intake.

Evidence

- A systematic review of 7 RCTs lasting 6 months or longer (N=6489) compared participants consuming reduced dietary sodium with control participants.¹ Average baseline sodium intake of about 3900 mg was reduced to about 3000 mg per day. The longest follow-up data for normotensive and hypertensive participants showed no statistically significant difference in -all-cause mortality—relative risk (RR)=0.90 (95% CI 0.58 to 1.40) for normotensive subjects and RR=0.96 (95% CI 0.83 to 1.11) for hypertensive subjects; -and CVD events—RR=0.71 (95% CI 0.42 to 1.20) for normotensive subjects and RR=0.84 (95% CI 0.57 to 1.23) for hypertensive subjects.
- Reanalysis² combining normotensive and hypertensive patients found -a significant reduction in CVD events—RR=0.80 (95% CI 0.64 to 0.99), number needed to treat of 48; -and no significant reduction in mortality.
- A systematic review of 13 cohort studies (N=177 000) reported that higher salt intake increased stroke and, likely, CVD.³
- Observational data suggest sodium intake follows a J-curve, with very high and very low intake being harmful.⁴

Context

- Interpretation of cohort data, particularly dietary data, is fraught with difficulty. Two separate analyses of a large American cohort study came to opposing conclusions regarding sodium intake and CVD risk.^{5,6}
- Estimated sodium intake for US adults is about 3500 mg daily.⁷
- Canadian guidelines recommend 1500 mg per day of sodium (upper limit 2300 mg daily) for persons 14 to 50 years of age.⁸ The American Heart Association has also called for a reduction to 1500 mg per day.⁹
- Low-sodium diets reduce blood pressure.¹⁰ The effect might attenuate over time¹¹ (which might be related to compliance).

Implementation

One teaspoon of salt from the salt shaker has an impressive 2325 mg of sodium. Despite this, processed and fast foods are generally cited as the primary source of high sodium in Western diets.¹² A hamburger with bacon and cheese from a fast-food restaurant has approximately 2000 mg of sodium per serving.¹³ A recent observational study in the United Kingdom reported that more than one-third of sodium purchased (37%) was accounted for by 5 food categories: bacon, bread, milk, cheese, and sauces.¹⁴ Conversely, 1 apple, orange, or banana contains a whopping 0 to 1 mg of sodium.¹⁵

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The opinions expressed in this Tools for Practice article are those of the authors and do not necessarily mirror the perspective and policy of the Alberta College of Family Physicians.

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