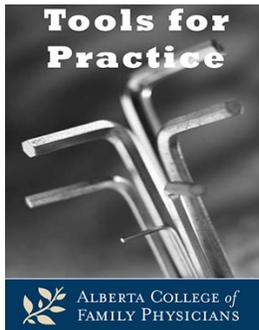


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Evidence Updated: New evidence
Bottom Line: Minor change
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Cutting out the sodium: The Bland Supremacy?

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

Bottom Line: The impact of salt intake on CVD outcomes is controversial. Trials demonstrating beneficial trends enrolled patients with an average sodium intake of 3800 mg/day and reduced their intake by ~600 mg/day. More evidence with clinical outcome is required to better define benefits and harms with different levels of daily sodium intake.

Evidence:

Cochrane review¹ of eight Randomized Controlled Trials (RCTs), 7,198 patients compared reduced dietary sodium to control, and followed them for six months to 15 years

- Average baseline sodium intake (~3800 mg) was reduced by 600 mg/day.
- At longest follow-up, there was no statistically significant difference for outcomes in normotensive and hypertensive patients.
 - All-cause mortality:
 - Normotensive: Relative Risk (RR) 0.90 (0.58-1.40).
 - Hypertensive: RR 0.99 (0.87-1.14).
 - CVD events:
 - Normotensive: RR 0.71 (0.42-1.20).
 - Hypertensive: RR 0.77 (0.57-1.02).
 - Trend (non-significant) is for reduced outcomes.

Observational studies show conflicting associations between sodium intake and outcomes (including opposite conclusions in different analyses of the same cohort^{2,3}):

- Systematic review⁴ of 13 cohort studies (177,000 patients) that assumed a linear association between sodium intake and outcomes found.
 - Non-significant increase in CVD events with higher versus lower intake: RR 1.14 (0.99-1.31).

- Increased stroke risk with higher sodium intake: RR 1.23 (1.06-1.43).
- Other reviews found a J-curve:
 - Meta-analysis of 23 cohort studies (274,683 patients)⁵ found lowest risk of mortality and CVD with sodium intake 2600-5000 mg/day.
 - Pooled analysis of four studies (133,118 patients)⁶ found sodium intake associated risks varied by presence of hypertension.
 - Normotensive: ≥ 3000 mg/day lowest risk.
 - Lower sodium intake had increased 26% RR of CVD and/or death.
 - Hypertensive: 4000-7000 mg/day lowest risk.
 - Lower or higher sodium intake had 23-34% increased RR of CVD and/or death.

Context:

- Canadian guidelines⁷ recommend upper limit 2300 mg/day of sodium for persons ≥ 14 years-old.
 - Based on best-available evidence this may produce no benefit,¹ or cause significant harm.^{5,6}
- Estimated sodium intake for Canadian and American adults is ~ 3600 mg/day.⁸
- Low-sodium diets reduce blood pressure,^{9,10} a surrogate marker for CVD.¹¹
 - Atenolol¹² and aliskiren¹³ are other interventions that lower blood pressure, but have not been shown to reduce mortality.

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