



The Bland Supremacy: Salt and cardiovascular disease

CLINICAL QUESTION

Does reducing sodium intake or substituting table salt with sodium-potassium alternatives improve cardiovascular outcomes?

BOTTOM LINE

Based on one large randomized, controlled trial (RCT) in patients with hypertension/previous stroke with above average daily salt intake (example 4.8 g/day), replacing table salt with a salt substitute may decrease mortality (from ~4.5% to ~4%) and stroke (from ~3.5% to 3%) per year. Whether reducing sodium by other means reduces mortality or cardiovascular events is unknown.

EVIDENCE

- Results statistically significant unless indicated.
- Table salt substitution (75% sodium-chloride/25% potassium-chloride), largest RCT:¹
 - 20,995 participants from rural China (age ~65, mean blood pressure ~154/89, 73% with stroke history, sodium intake ~4.8g at baseline),² estimated incidence per year:

- Mortality: ~4% (salt substitution) versus ~4.5 % (usual salt), Number Needed to Treat (NNT)=200.
 - Strokes: ~3% (salt substitution) versus ~3.4 % (usual salt), NNT=250.
 - Systolic blood pressure: Reduced by 3.3mmHg (salt substitution) compared to continuing regular salt.
 - Limitation: Likely higher than average salt intake.
- Four systematic reviews (including above trial) showed similar results for mortality.³⁻⁶
- Adverse effects:
 - Serum potassium: 0.12-0.18mmol/L higher with salt substitution.^{3,6}
 - Overall, few cases severe hyperkalemia/worsening renal function.^{3,6}
 - Limitations: Severe kidney disease excluded.¹
- Sodium reduction: No RCT powered to detect change in mortality/cardiovascular events.^{7,8}

CONTEXT

- Guidelines:
 - Recommend sodium reduction (example: <2g/day) but there is no reliable way for patients to estimate sodium consumption.⁹
 - Average sodium intake (Canadians): ~2.7-3.6g/day.^{10,11}
- In Canada, 75% sodium-chloride/25% potassium-chloride not available. Products with different blends of salt and potassium chloride (containing 50% less sodium than regular salt) are available (example: Half-Salt™).
- Blood pressure:
 - RCT: Lowering sodium intake (~3.6 to ~2.6 grams/day) reduces BP by ~4mmHg at 2.5 years.^{7,8} However, this was achieved with coaching to reduce sodium; unknown if brief interventions/self-help materials helpful long-term.
 - Effect of sodium substitution/reduction on blood pressure is comparable to blood-pressure medications.¹²
- If processed food important source of sodium intake (common in North America, but not rural China), salt substitution/reduction may have less impact.
- Focusing on healthier food choices important; the Mediterranean diet has been shown to reduce the risk of cardiovascular events.¹³

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