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# There's no debate: lowering salt cuts strokes and heart attacks

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## DISCLOSURE STATEMENT

Francesco Cappuccio does not work for, consult to, own shares in or receive funding from any company or organisation that would benefit from this article, and has no relevant affiliations.



Tracing the effects of salt. Claire1066, CC BY



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The salt debate has filled the pages of health magazines and newspapers for years. From John Swales' **original scepticism in 1988** to the **Godlee's sharp call to reality** in 1996, the debate has transcended the scientific arena into public opinion and media campaigns with **increasingly passionate tones**. Now a new study, **published in BMJ Open**, suggests that a 15% drop in daily salt intake in England between 2003 and 2011 led to 42% less stroke deaths and a 40% drop in deaths from coronary heart disease. So where does this leave the salt debate?

The salt controversy has **been particularly heated** since the translation of the results of scientific studies into public health and policy actions and the "salt debate" **has become for some** a "salt war". The progression of this debate into a war resembles past and present debates (let us think about John Snow and the cholera epidemic in the 19th century, the long-

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lasting denial of the harm of tobacco smoking in the 20th century, global warming and climate change in the 21st century), when the translation of science into practice **clashes with vested interests**.

The scientific facts are: salt is causally related to blood pressure, the higher the salt intake, the higher the blood pressure, an effect seen since birth. A small reduction in salt intake (up to 50% of what we eat now) causes a fall in blood pressure in almost everyone across the whole range of blood pressure, although individuals will respond more or less, depending on factors like age, ethnicity, levels of blood pressure, body weight. High blood pressure causes strokes and heart attacks and a reduction in blood pressure reduces them. The effect is related to the size of the fall in blood pressure.

It is therefore conceivable that a moderate reduction in salt intake in a population would help reduce stroke and heart attacks through a reduction in blood pressure. The hypothesis is a no brainer but for scientists very difficult to “prove”. To prove that a reduction of salt intake in populations over an extended period of time reduces the rate of strokes and heart attacks would need a randomised double-blind placebo-controlled clinical trial.

However, it has been argued that such a “mother of trials” **will never be possible**. Should we then refrain from implementing public health policies based on the available evidence so far? A randomised clinical trial of tobacco smoking and lung cancer was never carried out in humans to “prove” that smoking causes lung cancer and that we should eventually ban tobacco. And an assessment of the bulk of evidence underlying population action of salt reduction dwarfs the evidence that supports today accepted policies on weight reduction, increase in physical exercise, intake of fibre, fruit and vegetable for the prevention of both cancer and cardiovascular disease.

The BMJ Open study is another contribution to the bulk of supportive evidence suggesting, though not proving, a plausible connection between the reduction in salt intake achieved in the last eight years in the UK with a national programme (1.4g less salt per day) and the reduction of



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average population blood pressure (3.0/1.4 mmHg) and cardiovascular mortality (42% in stroke and 40% in ischaemic heart disease) during the same period.

The analysis used available datasets from repeated national surveys and indicates that the reduction in cardiovascular mortality was also compatible with a concomitant reduction in smoking, serum total cholesterol, and a modest increase in fruit and vegetable intake – but against a trend of a rise in average body weight.

Limitations are implicit in this type of analyses: ecological fallacy, unexplained confounding of the data and the use of crude mortality rates. The study probably will not satisfy those in need of hard science to prove population effects to support actions. However, it informs and encourages policy makers to the feasibility of implementing such programmes and the potential for small but significant sustained cost-saving effects.

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