

No 170
August 2011

Salt Skip News

Published in the public interest on the web at www.saltmatters.org

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Cutting down on salt does not reduce the likelihood of dying or experiencing cardiovascular disease.

That was the conclusion of a meta-analysis of trials of sodium lowering published in July (Taylor RS, Ashton KE, Moxham T, et al. Reduced dietary salt for the prevention of cardiovascular disease: A Meta-Analysis of Randomized Controlled Trials. *Am J Hypertension* July 6 2011). A meta-analysis is an analysis of several independent studies of the same design, and is intended to provide the statistical power and insight of a very large study from a collection of smaller studies. The meta-analysis was based on seven studies covering a total of 6,489 participants.

"Intensive support and encouragement to reduce salt intake did lead to a reduction in salt eaten and a small reduction in blood pressure after more than six months," said lead author Rod Taylor who works at the Peninsula College of Medicine and Dentistry at the University of Exeter (UK).

But what they wanted to see was evidence that this change in diet also reduced people's risk of dying or having cardiovascular disease, he explained. But they did not find this.

However, as the old saying goes, "absence of evidence does not equal evi-

dence of absence" and it could simply be that the studies done so far have not been big enough.

Taylor said while 6,500 or so was enough participants to start drawing some conclusions, he believes you need at least 18,000 participants before you start seeing impact on health.

"We believe that we didn't see big benefits in this study because the people in the trials we analyzed only reduced their salt intake by a moderate amount, so the effect on blood pressure and heart disease was not large."

Reaction from Other Scientists:

Dr Lawrence Appel, from Johns Hopkins University Medical School in Baltimore, said the review "adds little to our knowledge about the health effects of sodium reduction".

He said none of the studies were designed to look at the effect of sodium reduction on cardiovascular events and risk of death, and "even in aggregate, the number of events

Meta-analysis (cont)

is small and the statistical power is limited".

Dr Nancy R Cook, from the Harvard Medical School in Boston, described the analysis as "crude" and "therefore loses information". She said the review misrepresents several of the studies, so the results are not reliable. For example, Taylor and colleagues just counted the number of events and didn't use individual patient data.

Simon Capewell, Professor of Clinical Epidemiology at the University of Liverpool said:

"This is a disappointing and inconclusive meta-analysis, with mixed data and small numbers of events. It is fronted by a potentially misleading press release from the *American Journal of Hypertension*.

The main message is that advice to individuals only succeeds in getting them to reduce their salt intake a little. This is not a new finding.

Crucially, it does not change the public health consensus which is that: dietary salt raises blood pressure (this is bad), reducing dietary salt intake lowers blood pressure (this is good), and government actions are far more effective and cost saving at reducing dietary salt intake, than is advice to individuals."

Professor Francesco Cappuccio, Head of the WHO Collaborating Centre for Nutrition at the University of Warwick, said:

"This is a surprisingly poor piece of work. The analysis bears little relevance to policy. The results are in keeping with a protective effect of salt reduction but due to the very small number of events, they do not reach statistical significance. Furthermore the conclusions

in patients with heart failure are based on a single questionable small clinical study in very sick hospitalised patients treated with extreme doses of water tablets, a practice not recommended by international guidelines.

"This study does not change the priorities outlined worldwide for a population reduction in salt intake to prevent heart attacks and strokes, the greatest killers in the world. What is important is not *whether* to reduce salt intake but *how* to do so to save lives. The published study confirms that individual choices may have little effect because salt is added to food before it is sold. Voluntary and regulatory reformulation of food by the food and catering industries must be implemented. Governments have an obligation to act to facilitate this process."

Robert Beaglehole, Emeritus Professor, University of Auckland and former World Health Organisation Director of the Department of Chronic Disease and Health Promotion comments:

"I agree that there is not yet sufficient evidence on hard outcomes, though there is plenty of evidence that salt reduction reduces blood pressure. A decent mortality study is still required. In the meantime, we should be doing all we can to reduce salt intakes - current high levels serve no useful purpose and are probably very harmful. Further, the real problem is that giving advice to reduce salt intake doesn't work. We need to reduce the amount of salt in manufactured food".

Professor Robert Walker, Head of Department, School of Medicine, University of Otago, comments:

"An interesting analysis. I think the important issue is that it is from a relatively small

Meta-analysis (cont)

number of studies - 7 in total but only 2 were in groups that would be deemed at moderate risk - the more hypertensive group.

“Lowering salt intake has clear cut evidence for reducing blood pressure. However blood pressure is not the only cardiovascular risk and therefore it has to be seen in the global context of reducing risk not as the sole intervention to reduce heart attacks.

“In addition, the impact of salt is not solely on blood pressure, elevated salt intake also has direct effects on blood vessel function independent to that of blood pressure. This may be more critical to the risk of stroke or kidney damage, rather than heart attack, which the meta-analysis did not address.

“Therefore in the context of general good health, it is not appropriate to go out and reload the salt shaker. Dietary reduction in salt for those at risk of cardiovascular disease should still be encouraged and placed in the same context as exercise, healthy diet and smoking cessation.”

Elaine Rush, Professor of Nutrition, Auckland University of Technology, comments:

“Hypertension does not just happen, as we age blood pressure increases. Relatively high blood pressure in young children and adolescents is a risk factor for high blood pressure in later life. Reducing salt intake may help, but increased physical activity, less stress, losing extra weight and improving the nutrient quality of the foods eaten also help reduce blood pressure and improve health.

“Putting the spotlight on single nutrient trials and generalizing dietary advice for a single nutrient, in this case to reduce salt intake, is not helpful. What is helpful is for the food industry to reformulate products to reduce sodium AND increase the nutrient quality of foods by using real ingredients.

“Junk food and marketing to children are elephants in the room. Changes in our attitudes to these would markedly reduce salt consumed, shift consumption to real foods and be friendlier to health and the environment in the long term.”

Professor Bruce Neal, chair of the Australian division of World Action on Salt and Health, described recent mis-reporting of research on salt as “fundamentally irresponsible”.

He argued: “If you look at the totality of the evidence it's absolutely clear - we are eating vastly more salt than we need and it is causing an enormous burden of disease. We just need to get on and make salt reduction happen.”

Final comment

It would appear that there is broad disagreement in the scientific community about the conclusions of the meta-analysis.

The criticisms rest on the small number of studies available for the meta-analysis, the modest amount of sodium lowering achieved in the studies and therefore the poor chance of finding an association between dietary sodium reduction and mortality.

It remains the case that the main benefit of dietary sodium lowering for the population (although not the only one) is a reduction in high blood pressure. It is known that lowering high blood pressure protects against heart disease including stroke. It is assumed that lowering dietary sodium also protects against heart disease and stroke although this has not been directly shown.

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We are on the Web at
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Salt Skip News will
continue to be distributed
in hard copy in The BP
Monitor (QHA newsletter)

The cost-effectiveness of interventions designed to reduce sodium intake.

[Wang G, Labarthe D J Hypertension Jul 22, 2011]

These investigators from the Centers for Disease Control and Prevention (CDC), Atlanta, Georgia, USA assessed whether interventions to lower sodium were cost effective. A search of 10 years of scientific literature found 11 articles that provided relevant information on the medical cost savings, implementation costs, or cost-effectiveness of interventions to reduce sodium intake.

The interventions were low in cost, e.g. one study showed that the cost ranged from US\$ 0.03 to 0.32 per person per year for awareness campaigns through mass media outlets and government regulations on food products in low and middle-income countries. Population-wide interventions for salt reduction are very cost-effective such as only ARS\$ 151 per disability-adjusted life-year (DALY) saved in Argentina, whereas medication therapy (statin) to lower high cholesterol was \$ 70994 per DALY saved. Another study showed that sodium reduction could save US\$ 18 billion in annual US healthcare costs by reducing sodium intake to 2300mg/day.

Their conclusion was that literature provided economic evidence that was in favour of population-wide interventions designed to reduce sodium intake. Reducing the intake of sodium through such initiatives might be one of the best buys in public health. However, the small body of literature and hypothetical scenarios in most studies might limit policy implications of the findings.

Check out AWASH

The website for the Australian Division of World Action on Salt and Health is:

www.AWASH.org.au

The AWASH website is always worth looking at—informative and changing frequently.

BP Monitor with Salt Skip News is published every 2 months, from February to December (6 issues a year).
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