

1999 Science in Society Journalism Awards

Magazine

Gary Taubes

“The (Political) Science of Salt”

[Science](#)

Part Five: Poles apart

Over the past 5 years, two conspicuous trends have characterized the salt dispute: On the one hand, the data are becoming increasingly consistent — suggesting at most a small benefit from salt reduction — while on the other, the interpretations of the data, and the field itself, have remained polarized. This was vividly demonstrated by two more salt-blood pressure meta-analyses. In 1993, with the appearance of the NHBPEP primary prevention report, the Campbell’s Soup Co. enlisted the University of Toronto’s Logan to do the first of them. Logan had studied salt reduction in the early 1980s and found it to be of “very little” use. With funding from Campbell’s, he now identified 28 randomized trials in normotensives and 28 in hypertensives. Meanwhile, Cutler learned of Logan’s new analysis and countered by updating his own.

The results of the two studies were virtually identical — or at least, “more similar than they are different,” says Cutler, who based his new meta-analysis on 32 relevant studies. For a reduction of roughly 6 grams of salt, Cutler claimed the trials demonstrated a blood pressure benefit of 5.8/2.5 mmHg in hypertensives and 2.0/1.4 mmHg in normotensives. Logan claimed a benefit of 3.7/0.9 mmHg in hypertensives and 1.0/0.1 in normotensives. Considering the possible errors, says Robins, “those are the same data. The rest is smoke and mirrors.”

Logan and Cutler then went about interpreting the data in opposite ways that happened to coincide with their established opinions. Logan and his collaborators noted that these estimates were probably biased upward by negative publication bias — in which studies finding no effect are not published — and by a placebo effect. They said there was some evidence suggesting that sodium restriction might be harmful and concluded that “dietary sodium restriction for older hypertensive individuals might be considered, but the evidence in the normotensive population does not support current recommendations for universal dietary sodium restriction.” Cutler and his colleagues claimed that the numbers did not appear to be biased upward by either a placebo effect or a negative publication bias. They said there was no evidence suggesting that salt reduction can be harmful and concluded that the data supported a recommendation of sodium restriction for both normotensives and hypertensives.

Logan’s paper got the better press, because it contradicted the established wisdom and was published in JAMA in 1996, a year before Cutler’s paper appeared in the American Journal of Clinical Nutrition. But advocates of salt reduction — notably Graham MacGregor of St. George’s Hospital Medical School in London, author of two popular cookbooks on low-salt and no-salt diets — suggested to reporters that Logan’s meta-analysis could not be trusted because of a conflict of interest from the Campbell’s funding. In a JAMA editorial accompanying Logan’s meta-analysis, NHLBI director Claude Lenfant recommended that the study be ignored, in any case, on the familiar grounds that “the preponderance of evidence continues to indicate that modest reduction of sodium ... would improve public health.”

Despite Lenfant’s assessment, the latest salt studies seem to agree with the negligible benefit of salt reduction suggested by Logan’s interpretation. That was the bottom line of the University of Copenhagen meta-analysis, published in JAMA in May, and also of the NHLBI-funded Trials of Hypertension Prevention Phase II (TOHP II) published in March 1997. TOHP II, a 3-year clinical trial of 2400 people with “high normal” blood pressure, coordinated by Hennekens at Harvard Medical School, found that a 4-gram reduction in daily salt intake correlated with a 2.9/1.6-mmHg drop in blood pressure after 6 months. That benefit, however, had mostly vanished by 36 months, and Hennekens agrees that it could have been due to a medical intervention effect.

Of all these studies, the one that may finally change the tenor of the salt debate was not actually about salt. Called DASH, for Dietary Approaches to Stop Hypertension, it was published in April 1997 in The New England Journal of Medicine. DASH suggested that although diet can strongly influence blood pressure, salt may not be a player. In DASH, individuals were fed a diet rich in fruits, vegetables, and low-fat dairy products. In 3 weeks, the diet reduced blood pressure by 5.5/3.0 mmHg in subjects with mild hypertension and 11.4/5.5 mmHg in hypertensives — a benefit surpassing what could be achieved by medication. Yet salt content was kept constant in the DASH diets, which meant salt had nothing to do with the blood pressure reductions.

Indeed, if the DASH results stand up, says Day, they suggest that fruits and vegetables may be the true cause of the effects attributed to salt in the old ecologic studies. Societies that have high salt intakes tend to consume highly salted preserved foods simply because they do not have year-round access to fruits and vegetables. Now the DASH collaboration has embarked on a follow-up to differentiate the effects of salt from those of the DASH diet. The researchers are working with 400 subjects, randomized to either a control diet or the DASH diet and to three different levels of salt intake — 3, 6, or 9 grams daily. Results are expected in 2 years.

“We’re all being pushed by people who say, ‘Give me the simple answer. Is it or isn’t it?’ ”

— Bill Harlan

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