

## What about steroids?

We recognize the desire to produce a “Five things to know about ...” article for a common clinical condition. After all, the popular press constantly barrages us with similar entertaining lists of facts we didn’t know about certain things. Squizzato and Brown<sup>1</sup> have selected some interesting articles on which to comment from many thousands of possible articles. The danger of this approach was that it was completely at the discretion of the authors to select what they considered important topics and to hopefully then give an unbiased assessment of that topic. The article does not cite any of the 12 available Cochrane reviews on the topic of carpal tunnel syndrome.

For the most part, the article does a good job of simplifying the current knowledge. However, we take issue with point five regarding treatment of carpal tunnel syndrome. The authors based their recommendation on a small randomized-controlled trial comparing wrist splints and an educational program and a control group who received nothing.<sup>2</sup> Perhaps not surprisingly, the control group experienced a dropout rate of over 22% compared to 3% in the treatment group. This obviously places the internal (and therefore external) validity in question. The study ultimately went on to show an advantage to the splint group. But why include this study in the first place when there is a Cochrane systematic review published just the year before that looked at 19 studies of wrist splints with almost 1200 patients enrolled?<sup>3</sup>

We have concerns about the recommendation to consult an occupational therapist for splinting. Wrist splints are available and inexpensive, and basic advice on activities to avoid is within the purview of the primary care practitioner. We suggest referral to an occupational therapist or orthotist only when over-the-counter splints don’t fit well (such as carpal tunnel syndrome associated with rheumatoid arthritis) to avoid delay in initiating treatment and additional expense.

More worrisome is Squizzato and Brown’s<sup>1</sup> conclusion that, “if symptoms do not improve within eight weeks,

referral to a surgical specialist should be considered.” There is no evidence that eight weeks of splinting is the limit. This recommendation could lead to unnecessary surgical consultations. There is no mention of electrodiagnostic studies in the diagnosis and monitoring of the condition and no mention of the one treatment that has the best evidence of efficacy in carpal tunnel syndrome, corticosteroid injection.<sup>4</sup>

**Nigel Ashworth MBChB MSc, Jeremy Bland MBChB, Kristine Chapman MD, Gaetan Tardif MD**

Department of Medicine (Ashworth), University of Alberta, Edmonton, Alta.; EEG Department (Bland), Kent and Canterbury Hospital, Canterbury, UK; Neuromuscular Disease Unit (Chapman), Diamond Health Care Centre, Vancouver, BC; Division of Physiatry (Tardif), Toronto Rehabilitation Institute, Toronto, Ont.

## References

1. Squizzato V, Brown G. Carpal tunnel syndrome. *CMAJ* 2014;186:853.
2. Hall B, Lee HC, Fitzgerald H, et al. Investigating the effectiveness of full-time wrist splinting and education in the treatment of carpal tunnel syndrome: a randomized controlled trial. *Am J Occup Ther* 2013;67:448-59.
3. Page MJ, Massy-Westropp N, O’Connor D, et al. Splinting for carpal tunnel syndrome. *Cochrane Database Syst Rev* 2012;(7):CD010003.
4. Marshall S, Tardif G, Ashworth N. Local corticosteroid injection for carpal tunnel syndrome. *Cochrane Database Syst Rev* 2007;(2):CD001554.

**Competing interests:** Ashworth and Tardiff coauthored the Cochrane review on corticosteroid injection.

*CMAJ* 2015. DOI:10.1503/cmaj.115-0001

## Too much focus on low-quality science?

The controversy concerning dietary sodium results primarily from low-quality studies and their commercial marketing and promotion.<sup>1-5</sup> Low-quality studies do not adequately assess sodium intake, they use extreme variation in dietary sodium and they measure outcomes over a duration of a few days. They do not address known confounding factors for the outcomes being tested nor do they control for blood pressure (the main mechanism of sodium-induced harm) and they are conducted in populations with diseases

where reverse causality is likely. Such poor-quality studies are often promoted and occasionally conducted by consultants of the Salt Institute (an umbrella organization of the salt industry). The publication of such studies, leveraged by the private sector, has created a false aura of scientific controversy around dietary salt.<sup>1-5</sup>

Although the call for a large randomized controlled trial on dietary sodium is not new, it has limited feasibility in Western countries where the food supply contains so much sodium.<sup>6</sup> In Africa, where some populations still have low sodium intake, it was deemed unethical to increase dietary sodium in a trial setting. In China, where sodium added during cooking is a major source of dietary sodium, a large randomized controlled trial with a salt substitute is underway, but results will be confounded by very high baseline sodium intake and the need to use a salt substitute with potassium (a beneficial nutrient). In other countries, extensive dietary advice and support, when used alone, has proven ineffective at substantially lowering dietary sodium over the long haul.<sup>7</sup> Hence, a large trial based on advice alone is unlikely to lower sodium intake, let alone show changes in outcomes.

It is important to also consider the World Health Organization (WHO) forum and technical meeting, “Reducing salt intake in populations,” discussed by MacLeod and Cairns.<sup>8</sup> The WHO forum was developed around controversial new evidence from the PURE study, which categorized an individual’s long-term sodium intake based on a single “spot” (fasted first morning) urine sample.<sup>9,10</sup> This method is widely recognized as inadequate to assess a person’s usual sodium intake, would not meet the minimum study quality criteria of blood-pressure studies for inclusion in the WHO evidence review<sup>11,12</sup> and is therefore unlikely to have a bearing on dietary sodium recommendations.<sup>13,14</sup>

It is concerning that the PURE validation study for using spot urine samples was fraught with methodologic

issues that could inflate the perceived utility of such samples.<sup>5,9</sup> The content and topics of the WHO forum were structured around several presenters with known conflicts of interest and close industry involvement. Although a “balance” of scientists representing public health and scientific organization views were later invited to the WHO forum, they were not asked to contribute to MacLeod and Cairns’ article.<sup>8</sup>

The conclusion that dietary sodium reduction is controversial was announced in WHO advertising before the forum program was even finalized, resulting in the withdrawal of several invited speakers. Organizers did not respond to a call for public disclosure on the distribution and use of industry funds raised. Commercial sponsorship by the food and beverage industry of food-policy meetings has been viewed as a public health threat.<sup>15</sup>

That a small group of dissident scientists, most of whom have conducted weak and flawed research, and a few scientists with long histories of working with food and salt industries disagree is not a surprise. That MacLeod and Cairns’<sup>8</sup> article caters to this small conflicted group is a concern as it provides undeserved credence and endangers public health.

**Norm Campbell MD, Mary R. L’Abbe PhD, Earle W. McHenry PhD**

Departments of Medicine, Community Health Sciences, Physiology and Pharmacology (Campbell), Libin Cardiovascular Institute of Alberta, O’Brien Institute of Public Health, University of Calgary, Calgary, Alta.; Department of Nutritional Sciences (L’Abbe, McHenry), Faculty of Medicine, University of Toronto, Toronto, Ont.

## References

- Cobb LK, Anderson CA, Elliott P, et al. Methodological issues in cohort studies that relate sodium intake to cardiovascular disease outcomes: a science advisory from the American Heart Association. *Circulation* 2014;129:1173-86.
- Campbell NR, Lackland DT, MacGregor GA. Dietary sodium: a perspective on recent sodium evidence — its interpretation and controversies. *J Clin Hypertens (Greenwich)* 2013;15:765-8.
- Neal B, Land MA, Woodward M. An update on the salt wars — genuine controversy, poor science, or vested interest? *Curr Hypertens Rep* 2013;15:687-93.
- Appel LJ, Whelton PK. Flawed evidence should not derail sound policy: the case remains strong for population-wide sodium reduction. *Am J Hypertens* 2013;26:1183-6.
- Campbell NRC, Lackland DT, Niebylski ML, et al. Is reducing dietary sodium controversial? Is it the conduct of studies with flawed research methods that is controversial? A perspective from the World Hypertension League Executive. *J Clin Hypertens (Greenwich)* 2014; Nov. 6 [Epub ahead of print].
- Fischer PW, Vigneault M, Huang R, et al. Sodium food sources in the Canadian diet. *Appl Physiol Nutr Metab* 2009;34:884-92.
- Hooper L, Bartlett C, Smith GD, et al. Systematic review of long term effects of advice to reduce dietary salt in adults. *BMJ* 2002;325:628-37.
- MacLeod SM, Cairns J. Controversial sodium guidelines: Scientific solution or perpetual debate? *CMAJ* 2015;187:95-6.
- O’Donnell M, Mentz A, Rangarajan S, et al. Urinary sodium and potassium excretion, mortality, and cardiovascular events. *N Engl J Med* 2014 ;371:612-23.
- Campbell N. Validation and comparison of three formulae to estimate sodium and potassium excretion from a single morning fasting urine compared to 24-h measures in 11 countries. *J Hypertens* 2014;32:2499-500.
- Aburto NJ, Ziolkovska A, Hooper L, et al. Effect of lower sodium intake on health: systematic review and meta-analyses. *BMJ* 2013;346:f1326.
- WHO guideline: sodium intake for adults and children. Geneva (Switzerland): World Health Organization; 2012.
- Campbell NR, Appel LJ, Cappuccio FP, et al. A call for quality research on salt intake and health: from the World Hypertension League and Supporting Organizations. *J Clin Hypertens (Greenwich)* 2014;16:469-71.
- Ji C, Sykes L, Paul C, et al. Systematic review of studies comparing 24-hour and spot urine collections for estimating population salt intake. *Rev Panam Salud Publica* 2012;32:307-15.
- Freedhoff Y, Hebert PC. Partnerships between health organizations and the food industry risk derailing public health nutrition. *CMAJ* 2011 ;183:291-2.

**Competing interests:** Norm Campbell is a member of World Action on Salt and Health, Co-chair of the Pan American Health Organization/World Health Organization Technical Advisory Group on Dietary Salt and the HSF CIHR Chair in Hypertension Prevention and Control and was on the steering committee of the Canadian Sodium Working Group. Norm Campbell received travel support in 2012 from Novartis to present on hypertension control. Mary L’Abbe has received funding for sodium research from the CIHR, CSN, HSFC, DFC and IDRC; she received funding (2014–2015) from the Retail Council of Canada to examine changes in sodium levels in the Canadian food supply. She was Chair/Vice-chair of the Canadian Sodium Working Group and is a member of the WHO Nutrition Guidance Expert Advisory Group on Diet and Health and the HSFC Compass advisory group.

*CMAJ* 2015. DOI:10.1503/cmaj.115-0005

## The problem isn’t just “out there,” it’s also “in here”

Giddings<sup>1</sup> suggests that Canada might benefit from a harmonized national vaccination initiative focused on increasing vaccine coverage. I’d like to suggest alternatives.

Although the effect of vaccine hesitancy on particular subpopulations is

unequivocal, I do not think that a national policy aimed at decreasing vaccine hesitancy, and ultimately increasing vaccine coverage, will be the leverage point that Giddings<sup>1</sup> hopes.

We assume that the cause of the problem is “out there” (e.g., parents who are hesitant to vaccinate their children), and not “in here” (e.g., policy decisions).<sup>2,3</sup> When we lose sight of the connections between top-down vaccination programs and the bottom-up immune response of an individual, we can expect to be surprised.

Heffernan and Keeling<sup>4</sup> show that measles vaccination has intended as well as unintended effects. Measles vaccination reduces the susceptible population as well as the incidence of disease (this is the intended effect — the one we claim credit for), but it also prevents the virus from circulating and thus prevents natural boosting. In the face of high vaccine coverage (i.e., > 70%), population immunity wanes slowly, and susceptibles replenish over time. The whole system balances uneasily near outbreak conditions (this is the unintended effect — the one that surprises). The final trigger is the introduction of infected individuals.

I am not opposed to a harmonized national solution, but it will require more thought than simply increasing vaccination coverage. Effective policies will need to creatively balance population-specific goals with an individual’s requisites for life-long immunity.

**David Vickers PhD**

Alberta Health Services, Edmonton, Alta.

## References

- Giddings G. Measles vaccination: a shot of common sense. *CMAJ* 2014;186:651.
- Meadows DH. *Thinking in systems: a primer*. White River Junction (VT): Chelsea Green Publishing; 2008.
- Sterman JD. Learning from evidence in a complex world. *Am J Public Health* 2006;96:505-14.
- Heffernan JM, Keeling MJ. Implications of vaccination and waning immunity. *Proc Biol Sci* 2009;276:2071-80.

*CMAJ* 2015. DOI:10.1503/cmaj.115-0003

## Letters to the editor

Letters have been abbreviated for print. See [www.cmaj.ca](http://www.cmaj.ca) for full versions and competing interests.