

## HEADS UP

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**Rehydration for gastroenteritis:  
Easy does it**

There has been interest in rapid rehydration for gastroenteritis to reduce hospital stay. A Canadian randomised controlled trial (RCT) compared intravenous (IV) rehydration with normal saline over 1 h given rapidly (60 mL/kg) or at the standard rate (20 mL/kg).<sup>1</sup> They found no difference in the proportion of children rehydrated at 2 h, nor in the proportion needing prolonged treatment, while the median time to discharge was actually significantly longer (6.3 vs. 5 h) for the rapid group.<sup>1</sup> A Melbourne RCT of 254 infants with at least moderate dehydration (2.7% of the 9331 children seen with gastroenteritis) compared rapid nasogastric (NG) rehydration (100 mL/kg over 4 h) with standard NG rehydration over 24 h.<sup>2</sup> The primary failure rates were similar (11.8% rapid, 9.2% standard), and although rapid rehydration avoided hospitalisation for just over half the infants, 22.7% failed discharge from the emergency department 4 h after rapid rehydration and another 7.6% were readmitted within 24 h.<sup>2</sup>

The vast majority of children with gastroenteritis will drink and can be rehydrated orally (over 97% in the Melbourne study). For the small number of children who require IV or NG rehydration, there is little to recommend rapid rehydration compared with a more sedate approach.

**References**

- 1 Freedman SB et al. *BMJ* 2011; **343**: d6976. Link: [http://www.bmj.com/highwire/filestream/542360/field\\_highwire\\_article\\_pdf/0.pdf](http://www.bmj.com/highwire/filestream/542360/field_highwire_article_pdf/0.pdf)
- 2 Powell CVE et al. *Pediatrics* 2011; **128**: e771–8. Link: <http://pediatrics.aappublications.org/content/128/4/e771.full.pdf+html>

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**The power of suggestion: Adverse events from inactivated vaccines mimic the disease**

While it is well recognised that live attenuated measles vaccine can cause a mild measles-like illness due to viral replication, this cannot happen with inactivated vaccines excluding vaccine failures. People often report that they develop influenza-like symptoms following killed influenza vaccine. Plausible explanations include release of cytokines like interferon that can cause flu-like symptoms or a coincidental viral infection, even influenza occurring before the vaccine can induce protective antibodies. However, French authors say this can be part of a new phenomenon, 'disease-specific adverse events following non-live vaccines'.<sup>1</sup> They describe statistically disproportionate reporting of gynaecological symptoms by girls receiving human papillomavirus vaccine, hepatobiliary disorders with hepatitis B vaccine and trismus with tetanus vaccine. Strengthening their case that



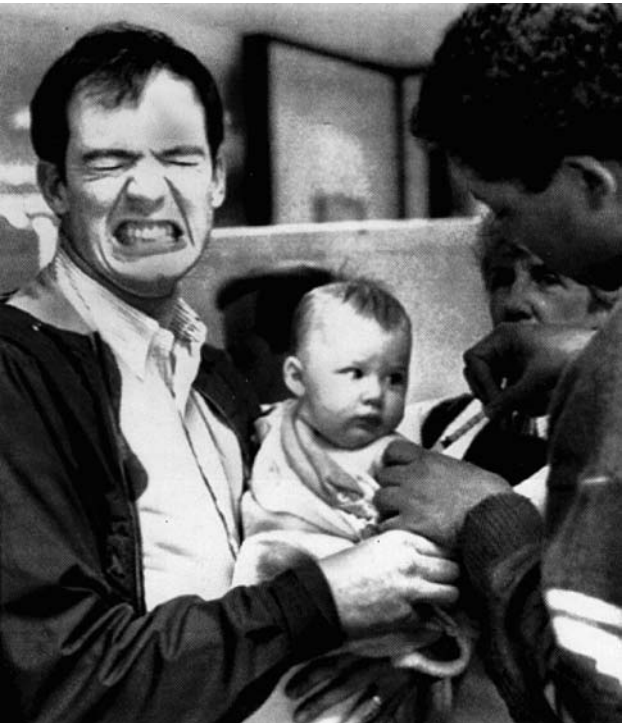
the symptoms are due to suggestion is the phenomenon that trismus was reported with the French monovalent tetanus vaccine (which had the word 'tetanus' in its proprietary name) but not tetanus-containing multivalent vaccines like diphtheria-tetanus-pertussis vaccine (which did not have 'tetanus' in the name).

The authors ascribe this to a 'paradoxical placebo effect' (when a positive expectation for a medical intervention has a negative outcome) or a 'nocebo phenomenon' (when an expected negative effect does occur). Neither seemed to do full justice to what they were describing, but I love that vaccine symptoms mimic the disease being prevented and what this tells us about the human mind.

**Reference**

- 1 Okais C et al. *Vaccine* 2011; **29**: 6321–6.

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**The evolution of the primitive stepping response in newborns**

Stepping responses can be evoked in neonates but are irregular and characteristically disappear 4–6 weeks after birth and reappear at age 6–8 months. There are different hypotheses about the development of motor patterns. Italian researchers compared basic patterns of lumbosacral motor neurone activity from multi-muscle recordings in stepping neonates, toddlers, pre-school children and adults.<sup>1</sup> They recorded kinematics, contact forces and electromyographic activity from up to 24 muscles simultaneously. Surprisingly, they found that the two basic patterns of stepping neonates were retained throughout development and augmented by two new patterns, which first appeared in toddlers. Very similar patterns were observed also in the rat, cat, macaque and guinea fowl, which suggest that despite substantial phylogenetic distances and morphological differences, locomotion in several animal species starts from common primitive origins, perhaps related to a common ancestral neural network.

**Reference**

1 Dominici N *et al. Science* 2011; **334**: 997–9.

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