Warm up

The power of placebo

P McCrory

Just when the silly season was starting to get on top of us, some welcome relief in the form of good solid science arrived on my desk. A study published in the *BMJ* looked at the therapeutic effect of wearing magnetic bracelets for pain control in osteoarthritis.[1]

I must admit my personal bias here. When I was the team doctor for one of our professional football clubs, we used to be inundated with salesmen pushing their magnetic wares. Magnetic bandages, pillows, shoe inserts, wrist bands, knee bands, and who knows what else. It seems the only limitation in their product range was their own imagination. Their strategy of leaving piles of their products around the football club was in the hope that they could then claim endorsement by some gullible celebrity athlete who would pick up a free sample. Not surprisingly, the footballers loved them. The combination of a free sample and some hocus science was an absolute winner. In fact, the more magnetic things they had attached to their bodies the better. It is like the old adage regarding footballers—if someone came along with a pill for immortality, a footballer would take two of them.

You may well pooh-pooh this sales tactic but let me remind you that in 1999, the worldwide sales of magnetic products was estimated at $5 billion USD (£2.6 billion, €3.8 billion).[2]

So you can understand my obvious satisfaction when I read the study of magnetic bracelets.[1] In a prospective RCT of 194 subjects with osteoarthritis of the hip and knee, three groups were studied for their pain levels wearing a standard strength bipolar magnetic bracelet, a weak magnetic bracelet, and a dummy non-magnetic bracelet. After 12 weeks of wearing the bracelets, all three groups reported less pain and the two groups with the magnetic bracelets reported less pain than the placebo group (note that it is impossible to blind the subjects to their use of a non-magnetic bracelet given that it doesn't stick to metal objects!) Despite this finding, there was no statistically significant difference in pain levels between the groups.

Previous studies in a variety of medical conditions have shown variable results from magnetic therapy with a few studies reporting a benefit in pain reduction[2 3] whereas larger most studies have reported no beneficial effect from magnetic therapy.[4–6]

Interestingly the effect of the magnets on pain, although small, was similar to that seen with other traditional first line osteoarthritis treatments such as topical non-steroidal creams[7] and exercise therapy.[8] It is reassuring to know that in this era of evidence-based medicine that placebos still work.

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Warm up

"Tomber dans les pommes" – can head injury cause brain damage?

P McCrory

Those readers looking for some amusing leisure time reading need look no further than the December issue of the *Canadian Medical Association Journal*. The enterprising authors—Antoine Cyr (age 5 years) and his brother Louise-Oliver (age 7 years) in conjunction with their father—analysed the adventures of Tintin in an attempt to discover why the Tintin grew no taller from 1929 to 1975, never had a girlfriend, and never needed to shave.[1]

After an exhaustive review of the published literature, episodes of head injury were identified by the authors and the injury severity determined by the duration of loss of consciousness (as measured by the number of frames before Tintin returned to normal activity) and the number of stars revolving above Tintin's head following injury.

Rather surprisingly a total of 50 episodes of head injury were identified (43 were AAN grade 3 concussion injuries) in Tintin's career. The mean length of LOC was 7.5 frames. The number of concussive events per adventure ranged from two to six, and most were blunt object impacts. Despite the absence of formal neuroimaging or neuro-endocrine assessment, the authors postulated that the repeated head trauma resulted in hypogonadotrophic hypogonadism and growth hormone deficiency, which in turn would explain his delayed statural growth, delayed onset of puberty, and lack of libido.

This is the first report of such a syndrome occurring following concussion. Pituitary and hypothalamic dysfunction is seen not uncommonly following severe head trauma or in the

setting of raised intracranial pressure after head injury but to date such a phenomenon has not been reported with concussive injury. As a result one would have to speculate that Tintin was in fact suffering from primary hypothalamic dysfunction and his clumsiness and repeated head trauma was incidental. The occurrence of repeated concussive injuries in athletes has been documented previously and thought to reflect the individuals risk taking behaviour rather than an intrinsic potential for injury[2]. In Tintin's case, annual neuropsychological screening may be advisable to detect and hopefully prevent any long term cognitive deterioration.

It has been suggested by some authors[3 4] that repeated concussive injuries may be a risk factor for ''second impact syndrome''; however, this has been questioned due to the limited evidence for its existence.[5] In Tintin's case, fear of this putative complication seems to have not been a management concern in his return to normal activity.

Some anecdotal return to play guidelines[6 7] would recommend immediate retirement or termination of the current adventure given that Tintin often experiences more than three concussive episodes in a short space of time. However, the Vienna guidelines[8] recommend no mandatory exclusion period but individualised assessment of recovery—a strategy that Tintin appears to have followed in preference. If these guidelines were strictly adhered to, however, then he would have to terminate the adventure following the initial injury and Snowy the dog or Captain Haddock may have to play a more central role in the story outcome.

I can only suggest that Tintin play close attention to the forthcoming Prague guidelines in view of his propensity of concussive injury in order to avoid long term problems.

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Expression of concern about content of which Dr Paul McCrory is a single author

This paper is authored by Dr Paul McCrory. During 2021 and 2022 there was an investigation by BJSM and BMJ which found that some of his work was the product of publication misconduct. Such misconduct includes plagiarism, duplicate publication, misquotation and misrepresentation in publications in respect of which he was listed as the sole author.[1] We are placing a notice to readers on all content in relation to which he is identified as the sole author to alert them to the conclusions of our investigation.

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