

the lay press and in advertising. The mechanism of action of this technique also remains undefined, but many drugs that are prescribed every day have unclear mechanisms of action. Chow and colleagues suggest that low-level laser treatment might work by anti-inflammatory effects on soft tissues; inflammation has not been noted in most patients with typical non-specific neck pain. In fact, the pathogenesis of so-called non-specific neck pain is poorly understood. The observation that low-level laser—applied to tender areas or acupuncture-like points—relieves neck pain should prompt new studies about the mechanisms of non-specific neck pain.

Pain is subjective, and outcomes such as effects on function, quality of life, or one's ability to participate in occupational and leisure undertakings have not been addressed. Cost-benefit has also not been established, so some would argue low-level laser does not warrant funding by health-care systems. However, without a doubt, a relevant reduction in pain can greatly enhance quality of life, and health-care systems around the world do currently fund interventional treatments for neck pain with scarce evidence for their effectiveness and with small reductions in pain.⁴ Arguably, low-level laser treatment should be funded by health-care systems because it is effective with few side-effects.

The systematic review methods used by Chow and colleagues adhere to accepted methodological and reporting standards; no reason to mistrust the methods is obvious.⁵ Similar conclusions have been reached elsewhere.^{6,7} However, the number of trials in today's report that were sponsored by the company manufacturing the laser devices is unclear, raising concerns of bias and partisanship. Yet funding for trials of rehabilitation interventions from non-commercial

partners is very scarce. The funnel plot in today's report to assess for publication bias was reassuring in that it suggested no major bias on this topic.

Today's findings on low-level laser therapy indicate that this non-invasive treatment provides pain relief in the short and medium term for people with neck pain. This evidence is more solid than that for many current interventions. Although mechanisms of action and effects on function and occupational outcomes are not clearly understood and warrant further impartial study, low-level laser therapy is an option worthy of consideration for management of non-specific neck pain.

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I declare that I have no conflicts of interest.

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COPE's retraction guidelines

Editors have a duty to maintain the integrity of the scientific record. "Whenever it is recognised that a significant inaccuracy, misleading statement or distorted report has been published, it must be corrected promptly and with due prominence. If, after an appropriate investigation, an item proves to be fraudulent, it should be retracted."¹ So states the Code of Conduct that all members of the Committee on Publication Ethics (COPE) should follow. Yet, editors are sometimes

reluctant,² they might encounter barriers by institutions or authorities to conduct a fair and speedy investigation with publicly available results, and there is a diversity of approach in how and why articles are retracted.³ In a 2004 analysis, very few of 122 journals had a retraction policy.³ Elizabeth Wager and Peter Williams presented an analysis of 312 retractions from 1988 to 2008 at the Peer Review Congress in Vancouver, BC, Canada, earlier this year (Wager E, Princes Risborough, Buckinghamshire, UK;

personal communication). Reasons for retraction were: fabrication (5%), falsification (4%), plagiarism (16%), redundant publication (17%), disputed authorship or data ownership (5%), inaccurate or misleading reporting (4%), honest research errors (28%), non-replicable findings (11%), and not stated (9%). So at least 42%, likely more, were due to misconduct. In an earlier analysis,⁴ 27% of 395 articles were retracted because of scientific misconduct.

The fact that retractions have increased over recent years⁵ might have many different explanations, but one legitimate interpretation is that editors are getting better in acting when they learn of malfeasance by authors. However, retracting a published paper is time consuming and not easy. Authors may disagree or threaten legal action. Editors might either not act when they should or act inappropriately. In COPE's experience, editors have, for example, taken online articles down instead of marking them as retracted, continue to hide retractions behind access barriers, and regard retractions as a personal failure to identify and publish high-quality research. While editors should certainly be watchful, it is notoriously difficult to identify misconduct at the editorial and peer-review stage.

COPE, therefore, felt that it might be helpful to issue guidelines on when to retract an article, and how to handle and publish retractions.⁶ The panel summarises when a retraction is appropriate and when an expression of concern is warranted. The guidelines, drawn up by a COPE subcommittee and endorsed by COPE Council, emphasise that the main purpose of a retraction is to correct the literature and alert readers to publications that contain seriously flawed or erroneous data to the extent that the conclusions cannot be relied on. It is not to punish the authors. Other reasons for retractions might include plagiarism or redundant publication. All retractions should be clearly labelled as such, state the reasons, and should be openly accessible. Retracted articles should not be removed from electronic archives or printed copies of the journal. On the question of who should issue the retraction and can authors disassociate themselves from retracted papers, COPE states that articles may be retracted by authors or editors. However, editors should always have the final decision on retractions and should not get drawn into lengthy negotiations with reluctant authors. Some authors might not have committed

Panel: Part of COPE's guidelines on retracting a paper or issuing an expression of concern

Journal editors should consider retracting a publication if:

- they have clear evidence that the findings are unreliable, either as a result of misconduct (eg, data fabrication) or honest error (eg, miscalculation or experimental error)
- the findings have previously been published elsewhere without proper cross-referencing, permission, or justification (ie, cases of redundant publication)
- it constitutes plagiarism
- it reports unethical research

Journal editors should consider issuing an expression of concern if:

- they receive inconclusive evidence of research or publication misconduct by the authors
- there is evidence that the findings are unreliable but the authors' institution will not investigate the case
- they believe that an investigation into alleged misconduct related to the publication either has not been, or would not be, fair and impartial, or conclusive
- an investigation is underway but a judgment will not be available for a considerable time

misconduct but authorship means some degree of joint responsibility for the integrity of the reported research.⁷ So the guidelines conclude that "it is not appropriate for authors to disassociate themselves from a retracted publication even if they were not directly culpable of any misconduct". On the question of legal liability, the reassuring message is that authors would not normally have grounds for taking legal action against a journal if it follows a suitable investigation and due process.

It is hoped that editors will adopt these guidelines, state that they follow them in their instructions for authors, and by doing so indicate a strong commitment to foster and guard research integrity. Public trust in science will be the stronger for it.

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I am vice-chair of COPE and was a member of the subcommittee that drew up the retraction guidelines.

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