

Editorial

Stopping the rot in nutrition science

Scientists are privileged. Our work and our reputations depend on trust. Like all professionals we are expected to keep our houses in order. The career of a scientist may be damaged or destroyed by discovery of misconduct, but such is not a crime against which there is recourse in courts of law. Wrong-doing in science taints the whole scientific endeavour. Here, scientific journals and their editors have a responsibility¹.

A case of fraud

Nutrition scientists may have reacted to the vast publicity following the revelation that a leading researcher fabricated his data concerning cloning of stem cells² with a sense not so much of outrage, as of 'There but for the grace of God goes nutrition'.

We have reason to feel uneasy. Beginning in 2002, letters in *Nutrition*³ and the *Lancet*⁴, a news story followed by correspondence in the *British Medical Journal*^{5–7} and coverage in lay publications⁸ questioned the veracity of papers identified as from a randomised controlled trial (RCT), published in two of those journals and elsewhere^{9–11}. In response, the author pointed out some mistakes in the criticisms and made a case for his results^{6,7,12}. He said he could not provide his data for new analysis because he had left his university for another country, the data were in store and some had been mislaid.

The individual whose work was questioned is not an ordinary nutrition scientist. Since the early 1970s he has been exceptionally productive. In 1974 his papers began to be published in the *Lancet* which, in 1983, asked him to summarise knowledge in his field¹³. Also, he has been powerful. Between 1980 and December 2003 he was chief editor of an international nutrition journal. From 1991 to 1994 he was founding head of a WHO Centre for Nutritional Immunology. In 1997 he was president of the 16th International Congress on Nutrition in Montréal, Canada. In 1999 he advised the US government how to improve the nutrition and immune function of combat soldiers¹⁴. He has been said to have been twice recommended for a Nobel Prize¹⁵.

The papers identified as troublesome are also extraordinary. They conclude that nutritional supplementation can, for elderly people, protect against infection and greatly improve memory and ability to learn, and so delay or even reverse dementia^{9–11}. The formulation for the supplement used has been patented by the scientist and marketed by a company founded by him or his

daughter^{5,8}. Another paper by him with similar results appeared in early 2002 in the journal he edited. The paper was stated to have been submitted and also accepted on the same day¹⁶. A supportive paper by another author was stated to have been submitted on that same day and accepted the next day¹⁷.

In 2005, not having had sight of any original data and because of the accumulated evidence of implausibility, *Nutrition* retracted the paper it had published in 2001^{11,18}. The *British Medical Journal* decided this was a prima facie case of fraud and wondered if other published papers by the scientist also included fabricated data¹⁹.

At the end of January this year 'the other boot dropped'. The Canadian Broadcasting Corporation (CBC) broadcast a three-part investigation, with a published transcript^{20,21}. This disclosed attempts to 'blow the whistle' on the scientist beginning in the early 1990s. CBC found that his university took no action on the findings of a committee of enquiry that agreed with the whistle-blower, concluding that the scientist had fabricated data. Certainly since July 2002 he has been styled at scientific and other meetings as Provost and Vice-Chancellor of the *Université Internationale des Sciences de la Santé*, based in the ski resort of Crans-sur-Sierre in Switzerland which, as far as the CBC investigation could tell, is a post-office box.

The evidence presented showed that he had indeed fabricated more data, for another study described as an RCT published in the *British Medical Journal*²² as well as his and another journal²³, concluding that some types of baby formula are less likely to cause allergic conditions such as eczema and asthma. The study was funded by manufacturers to test their brands of 'hypoallergenic' formula²⁰. Later he published a paper described as a meta-analysis in his own journal whose conclusions supported his own study²⁴.

Epidemic misconduct

So the 'rough justice' of a media investigation has exposed a major case of fraud in nutrition science. And here the matter begins. The name of the scientist is Professor Ranjit Chandra. But this is not a story about an individual. It is about a system and a culture that makes the thought of misconduct too tempting and actual misconduct too easy. And scientific journals have a duty here: thus this editorial.

Samuel Butler mocked the pomp of the founders of the Royal Society in his satire 'Hudibras'. He wrote: 'What makes all doctrines plain and clear?/ About two hundred

pounds a year./ And that which was prov'd true before/ Proved false again? Two hundred more'. It is often said that nutrition is mostly fad and fashion. A worse charge is that the judgements of too many nutrition scientists are for sale.

The governance of nutrition science is in question. How is its funding, practice and publication controlled? How can fraud remain undisclosed for so long, and what does this imply for other misconduct? How can anybody now take the findings of nutrition scientists on trust? Nobody can say 'this is an isolated case', and some readers may well know to the contrary. It can't be said that 'nobody suspected' because some people knew a decade ago, and the whole issue has been in the public domain for three years.

Fabrication, falsification, ghosts

And we can't say 'this won't happen again' because it will, and it does. In his early life Robert Clive pillaged vast areas of India. Later as governor of Bengal he audaciously observed: 'It is no wonder that corruption should find its way to a spot so well prepared to receive it'²⁵. Fraud in research science is not rare, particularly when patentable substances, such as drugs, and also nutrition supplements, branded foods and drinks, food formulae and genetically manipulated foodstuffs, are involved.

An informal survey published in 1988 carried out by Stephen Lock, a former editor of the *British Medical Journal*, of 80 senior UK research scientists, found that half knew of studies they believed to be fraudulent, of which over half had been published; of these, only six had led to any form of retraction²⁶. The Committee on Publication Ethics (COPE) was set up in 1997 by a group of journal editors. By 2000 COPE had examined 103 cases of alleged misconduct by researchers of published papers, of which 80 showed evidence of misconduct: of these, 15 involved falsification and eight fabrication²⁷.

Another form of fraud is research using phoney authors. In late 2003 an investigation carried out by a UK newspaper guesstimated that up to half of all papers published in medical journals on drugs are ghost-written, often with minimal contributions from the 'authors'. The response from Richard Smith, Stephen Lock's successor as editor of the *British Medical Journal*, was: 'We are being hoodwinked by the drug companies'²⁸.

After leaving the *British Medical Journal* Richard Smith went further. In 2005 he said that between two-thirds and three-quarters of all clinical trials of drugs are funded by industry, that industry is able to manipulate the questions asked by such trials and their study designs so as to produce results favourable to the drug, that one-third of such trials published in the *British Medical Journal* are so funded, and that medical journals are 'an extension of the marketing arm of pharmaceutical companies'²⁹. Richard Horton, editor of the *Lancet*, said the previous year: 'Journals have devolved into information laundering

operations for the pharmaceutical industry'³⁰. This February the *New York Times* reported that journalists are now more sceptical of findings published in scientific journals³¹.

Rent-a-profs, industry fronts, conflicts of interest

Venality is not fraud, and there are degrees of venality. Besides which, many scientists see no problem with accepting money from commercially or ideologically interested parties, whether or not disclosed, and some are prepared to 'speak for the product'. In either case, if questioned, they are likely to say that their integrity is not in question and their judgement is not affected. Such competing or conflicting interests may be considered so common as not to be worth mentioning. Observers are likely to think differently; to quote an old saying: 'Whose bread I eat, his song I sing'. In courts of law, evidence is given less or even no weight when a witness is known to have an emotional, financial or other interest in the case. The same applies – or should apply – in science.

A remarkable example of conflicted interest exposed in the UK press in February³² is that of the Association for Research into the Science of Enjoyment (ARISE). Founded in 1988, ARISE has been positioned as 'a worldwide association of eminent scientists', with a mission to show that 'everyday pleasures such as eating chocolate, smoking, drinking tea, coffee and alcohol contribute to the quality of life' and that deprivation of such pleasures, also including consumption of cream cheese, butter, cakes, ice cream and red meat, could cause a series of ailments, even brain damage³³.

The media enjoyed this hedonistic message: it seems that 195 printed or broadcast stories appeared between September 1993 and March 1994, and continued certainly until 2004. A snapshot of ARISE developed as documents were disclosed after legal actions. These show that in 1994–95 its proposed budget was \$US 773 750, almost all from cigarette manufacturers, with small amounts from food and drink companies³². ARISE is all that it says it is. Originally the Association for Research in Substance Enjoyment, it is also a front for Big Tobacco and its food and drink interests^{34,35}.

Undisclosed hiring of the facilities, knowledge and reputations of universities, research institutes, scientific departments and of individual scientists (known as the 'rent-a-prof' phenomenon) is well-known in our field; as is systematic funding of research in sensitive areas by interested parties, the dependence of congresses on support from transnational food manufacturers, and the influence of not-for-profit entities mainly funded and controlled by food, drink, agrochemical and/or pharmaceutical companies. These are reasons why nutrition science is not taken as seriously as we would wish, either by people in the know or by government, the media or the public.

What then is to be done?

We, as funders, administrators, practitioners or publishers of nutrition science, have a duty to make our profession candid. We can start by accepting that we are human. There is no reason to believe that scientists are by background or training any more or less likely to be corrupt or become corrupted than members of any other profession.

We should also accept that nothing can stop all fraud. In business, cases like Enron in the USA, Robert Maxwell in the UK and Parmalat in Italy will happen again. The same is so in science. The most we can do is to help make fraud rare. Also, action designed to prevent outrage can, in treating one disease, cause others. Laws designed to prevent terrorism that have reduced civil liberties have proved to be troublesome.

Nor can we realistically expect science to be free from influence by ideologically and commercially interested parties. The good old days when science was completely independent never existed. The most we can do is to help make honesty the best policy.

As editor of this journal, my conclusion is that the opportunities for venality, corruption and fraud in nutrition science are now too manifest, and the guards against them too casual. To repeat, the indictment is less of individuals, more of a culture that puts much temptation in the way of researchers who, seeing the rewards of greed all around, think of cooking their books, padding their bank accounts or modifying their opinions, do so once and have reason to believe that the risk of discovery or even of criticism is slight.

As the former President of Harvard has pointed out, there is a limit to what any one university or research centre can do in a climate of pressure to support industry, and also government, with useful research results³⁶. Individual journal editors can tighten up review systems and lay media editors can tell reporters to insist on being told the source of funding of scientific findings, but there is a limit to what even those with substantial salaries and staff can do. The only effective action will be concerted.

Putting our house in order

This journal is prepared to help promote a wind of change. We propose that the President and Council of the International Union of Nutritional Sciences (IUNS), in liaison with representative bodies for other disciplines, editors of scientific journals and administrators of research centres, should prepare, publish, publicise and practise an ethical code for nutrition science. This should promote the quality, relevance, accuracy, transparency and accountability of nutrition research as designed, carried out, published and promulgated, and therefore help to reduce, prevent and control misconduct, including venality and fraud.

Such a code may recommend an international equivalent of the US Office of Research Integrity, with

functions of judicial enquiry. Any such body should be funded to pursue enquiries, in confidence as appropriate, and be well protected on its own behalf – and also that of whistle-blowers whose reports it receives – against legal action. This journal is prepared to be active in such a process and to publish the code.

We immediately make one recommendation. All congresses for which IUNS and other major representative bodies such as the US Federation of Associations of Experimental Biology have a responsibility, should include discussion and audit of ethical principles and practice as an invariable session. Individual regular sessions could cover:

- Philosophy and method (including the ethical principles and practice of nutrition science, and the accuracy and relevance of different types of study design)³⁷.
- Funding and control (including the funding and governance of research centres, and the funding and sponsorship of researchers, congresses and journals).
- Independence (including the role of government, industry and foundations in research science, and competing and conflicting interests of researchers).
- Integrity (including issues of honesty, transparency and accountability, and apparent misconduct including plagiarism, venality, corruption or fraud).

Such general themes should generate workshops on current topics such as the adequacy of food-frequency questionnaires and issues arising from types of study that are so expensive they can be carried out only in or for rich countries (method); distortion of science by interested parties (funding and control); and the 'revolving door' between academia, UN agency and national government service, and commerce (independence).

This journal is not mainly concerned with original papers in which the safety or efficacy of nutritional supplements is assessed. Even so, as editor I cannot state with sufficient conviction that we have not nor ever would publish papers whose authors had serious conflicted interests, or whose conclusions derived from plagiarised or even falsified or fabricated data. Nor am I satisfied with the safeguards we now use to see that reviewers for and editors of this journal work in ways that are beyond reasonable reproach. Papers of which I have been a co-author have been published in this journal. I have not published any single author papers (only editorials) in *Public Health Nutrition*. All the original submitted papers were blind peer reviewed (as are all our original papers), but those that have appeared in special issues were generally not blind peer reviewed. In future we will ensure that *all* papers are blind peer reviewed. When we established the journal we agreed that submitted papers for which we were co-authors, or closely associated with the researchers, would be handled by another editor in the review and decision making process. I am not sure that this has always been the case; it

should be, and will be in the future. In 2006, we have introduced author, reviewer, and editor disclosure and declaration of interest guidelines.

It follows that we have a responsibility here. Insofar as we are able, we will with immediate effect follow the guidelines issued by the World Association of Medical Editors¹. We will at the same time consider how these guidelines should be modified in our case and therefore for journals concerned with nutrition and public health. Later this year, in consultation with the UK COPE³⁸ and concerned colleagues, we will prepare and publish our own policy.

Samuel Butler ends his collected essays by saying: 'Vices, like weeds, grow by being neglected; but virtues, like herbs, degenerate and grow wild, if there be not care taken of them. . . Many virtues may become vices by being ill-managed'³⁹.

Barrie Margetts
Editor-in-Chief

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CONGRATULATIONS to Professor Shobha Rao

It is with great pleasure that we announce that Shobha Rao, one of our associate editors, has been given a national award by the Indian Government for best woman scientist for Women's development through Application of Science and technology for 2005. Shobha received her award on 1st of March in a ceremony in Delhi.