

Out of the Box



Nutrition is a scientific discipline, a profession, and a contributor to health and well-being. These aspects are distinct. In this column I praise some nutrition professionals and appraise the profession of nutrition. Also, in further support of physical activity, I invoke the Leapman Factor.

Let us now praise

John Waterlow observes that, compared with the early 1970s when he was (with John Yudkin) one of the only two British professors of nutrition, the profession – as distinct, he says, from the world nutrition situation – has flourished^(1,2). Indeed, so it has, as witness the proliferation of chairs of nutrition, of membership of learned societies, of professional accreditation schemes and of scientific journals. In Britain now there is an Association of Professors of Nutrition and a Nutrition Professions Confederation. Now the World Public Health Nutrition Association has come into being, with illustrious officers, a luminous steering group and a challenging constitution⁽³⁾.

In Britain much of this growth is the result of assiduous work by honorary officers of the Nutrition Society. The reason why UK postage stamps do not state their country of origin is because Rowland Hill got there first in 1840. Likewise, the reason why the Nutrition Society has no preface is because its initial chair John Boyd Orr, and his colleagues who signed its original 1941 memorandum and articles of association, got there first, as the originators of national nutrition science societies⁽⁴⁾. This column includes praise of famous Nutrition Society men and women.

A provisional Bible

If you seek a monument to David Southgate, who died recently in the fullness of his years, look at any nutrition or dietetics journal, or many popular guides to food and health. The *Composition of Foods*, the model for its kind, is a testament to his lifetime of conscientious work. Successive editions also attest to his modesty. David did not have sharp elbows. Its fourth edition of 1978⁽⁵⁾ is entitled *McCance and Widdowson's The Composition of Foods*, and then 'by AA Paul and DAT Southgate'. The fifth edition of 1991⁽⁶⁾ credits David only inside as the last of a list of six people. The sixth edition of 2002⁽⁷⁾, dedicated to Robert McCance and Elsie Widdowson, republished their foreword to the fifth edition, in which David's role beginning half a century ago with preparation of the third edition of 1960⁽⁸⁾ was mentioned.

Successive editions of compendiums are the result of teamwork. Samuel Johnson invented the first comprehensive dictionary, and also – characterising himself as 'a harmless drudge' – created it single-handed. But he is not branded as the author of later English dictionaries. If any one person should be in the limelight as the begetter of the fourth to the sixth editions of *The Composition of Foods* it is David Southgate. This is not so much because of his meticulous bench work, but his indefatigable leadership of government advisory committees. A special place in heaven is reserved for those whose membership of mind-numbing official committees encourages civil servants and politicians and ensures that virtue prevails.

David has also bequeathed his open-mindedness. In the first edition⁽⁹⁾ of what is still called 'McCance and Widdowson' in the trade, the authors averred: 'The nutritional and dietetic treatment of disease, as well as research into the problems of human nutrition, demand an exact knowledge of the chemical composition of food'. Such Olympian pronouncement was not David's style. How can knowledge of an apple be exact when, as the classic fourth edition pointed out, a peeled Cox's Orange Pippin analyses out at 3 mg vitamin C/100 g whereas a whole Sturmer weighs in at 30 mg/100 g, or of a lettuce when the carotene content of outer green leaves may be fifty times that of inner leaves?⁽⁵⁾ Plus what about dietary fibre, David's speciality, practically invisible until the fourth edition? What is fibre? How best to analyse it? More generally, how can we ever be sure that currently known chemical fractions of food are those that are most relevant to human health? David never said 'the more we know, the less we know' – not to me anyway, in our own correspondence – but his natural caution has enlightened the discipline to which he dedicated his professional life.

The Composition of Foods is sometimes known as 'the Bible'. It is not tablets of stone but offerings of manna. It cannot be more than an Anglican repository to which new books and interpretations will always be added. Insistence on its nature as national work in progress enhances its quality. The next edition just better have a thundering great tribute to David Southgate.

Not weight but waist

That part of the public health nutrition world concerned with weight and its control has been living with the concept of BMI since the 1970s. All over the world

investigations into body fat are using the BMI measure, and there is great value in the same measure being used by different investigators, as anybody who has tried to make sense of studies of physical activity or of breast-feeding will know.

Whenever the BMI method is questioned, because it is a measure not of body fat but of body weight, researchers agree that while it is a rough and ready measure, it is satisfactory. Pah! Pish! The fact remains that sedentary people who get the message about physical activity and shed body fat while increasing their lean tissue may well not decrease much weight, and thus stay at much the same BMI, while becoming leaner, fitter and generally rejuvenated. This vitiates BMI.

So why is it used? Maybe one reason is that it is sufficiently technical to feel scientific. True, you don't need a boffin to read out your BMI, but you do need to fiddle with a computer or one of those slide rule-type calculators sometimes strapped to the cover of health magazines. At a recent meeting a distinguished Japanese epidemiologist told me with quiet pride that his BMI is under 25, and indeed he looks pretty trim. But how was he achieving this? Was it by occasional or incessant energy restriction, or by regular brisk walking and jogging? It makes a difference.

Also, the issue with body fat is not just quantity but location. The evidence that abdominal fat is much more of a problem than fat elsewhere on the body, is impressive. Michael Crawford, Joe Hibbeln, Ricardo Uauy, Tom Sanders, and many other investigators, are right in effect to state that there are no bad dietary fats, only bad types of fat. So maybe there is no bad body fat, only bad sites of fat.

Now to puff Margaret Ashwell, who, as a specialist in body composition and obesity since the 1970s with a career including a period at the Dunn Clinical Nutrition Centre in Cambridge, has set up her own consultancy. She has been insisting for many years that the key measurement is even simpler than waist-to-hip ratio: it is quite simply, waist and height measurement. The Ashwell Proposal⁽¹⁰⁾ is: Keep your waist circumference less than half of your height. I think she is right.

Getting frisky with Big Food

With Caroline Walker I claim some responsibility for the interest now taken by the food and drink manufacturing industry in physical activity. In the summer of 1986 Caroline and I wrote to Sir Derrick Holden-Brown, then chairman of the UK-based international conglomerate Allied-Lyons, asking him to give us a slap-up lunch at the London headquarters of the Food and Drink Federation (FDF), the trade association based in Britain of the big food and drink manufacturers of which he was president. We said we would propose an idea good for public health that would make pots more gold for industry and (between the lines) enhance his place in history.

He accordingly invited us. The FDF had at that time endured a fair old battering in the media from food activists, also known as food terrorists, food Leninists and food lentilists, of whom Caroline and I were two. The new FDF chief executive Michael Mackenzie may have surmised that our real purpose was to be horrid about junk food, for another guest was Vincent Marks, then professor of biochemistry at Surrey University, a horn-tooter for processed food in general and sugar in particular, who had already invented the headline-grabbing sound-bite 'muesli-belt malnutrition' to characterise the plight of tots and teens whose parents fed them whole food.

In the event Vincent munched and quaffed while Caroline and I explained that the food and drink industry should get behind physical activity in a Big Way. No, we did not mean the Mars Bar London Marathon (nor the Coca-Cola and McDonald's World Cup and Olympics). We meant enabling by the food and drink industry as a whole of walking, jogging, cycling, swimming, by financial and marketing support of city planners, traffic engineers and school boards.

This would do the food and drink industry a power of good, because the more physically active people are, the most they can eat and drink ('including your products, Sir Derrick' one of us oiled) without getting fat. There was a pause, and Sir Derrick said: 'Michael, I never thought of that – have you?'

Caroline followed up with a list of proposals, including that the food and drink giants as represented by the FDF should give big grants to inner city schools for playgrounds⁽¹¹⁾. The rest is living history. Alas, no chief executive officer has yet persuaded the food and drink industry as a whole to support physical activity at international and national level. Instead, individual brands support specific events, most of which encourage sedentary people to consume their calorie-bombs while watching sports on television. Alas.

The Leapman Factor

However, even the most inveterate food terrorist has to accept that regular sustained physical activity is crucial for health and well-being. The most authoritative relevant report on the prevention of cancer⁽¹²⁾ confirms⁽¹³⁾ that physically active people are protected against colon cancer, and now probably also against postmenopausal breast and endometrial cancers. So how come the importance of being active has been overlooked?

We all now know that measurements taken only at the time of activity ignore its continued effect after the activity has been completed. Also, anybody who is initially sedentary who then follows current standard recommendations for physical activity will gradually shed body fat and also gradually gain lean tissue. It is worth repeating that at the same body weight lean people turn over 400–600 kcal (roughly 1700–2500 kJ) a day more

than flabby people^(14,15). There is another reason why the energy value of physical activity is usually underestimated, and this I call The Leapman Factor. Do you want me to explain? Sure you do.

Michael Leapman, the distinguished British writer, is also a gardener. When he was *The Times* newspaper diarist he chatted about the joy of working in his allotment in Brixton, South London. In one column he reported that colleagues and friends were teasing him, saying that the energy he used planting and digging and weeding, and cleaning spades and all the other things that gardeners do, did not seem to be reducing his weight.

He worked out that what with the cost of the allotment itself, maintenance of the shed, tools and other equipment, seeds and so on, the cabbages, onions, carrots and other food he grew cost (in today's money) maybe £5 (around €8 or \$US 10) a pound, and if he costed in his own time at freelance rates, maybe three times as much. Imagine, the fully costed carrot, weight for weight about the price of silver! Besides, said his gleeful chums, there is not much evidence that home-grown food contains more nutrients than the varieties in supermarkets.

He then delivered the Leapman Refutation. The point, he said, is not the cost in money and the energy value of the food he was growing, in isolation. The point is what he would be doing instead. What else might he be doing with his money? Collecting vintage cars? Running a couple of mistresses? And on the topic of his weight – what else might he be doing with his time at weekends? Going down to the pub with friends, maybe? What effect would the accumulation over a year of 156 pints of beer, 104 packets of salted peanuts and 52 packets of pork scratchings have had on his weight?

That's to say, the issue with physical activity is not just the activity in itself, but what you would otherwise have been doing were you not being physically active. Wise wives, knowing the attraction of allotments, do not grumble about their husbands sloping off at weekends in wanky sweaters and muddy wellies. The alternative could be much, much worse. The same point applies to the consumption of food and drink. If you fill up with lots of fresh and benignly processed bulky plant and also animal foods, together with lots of water, you will have less room for energy-dense foods, and also will be consuming good stuff instead of bad stuff. Sure, you could follow with a triple gobbleburger, just like you could after being physically active. But in practice this usually does not happen – and if any reader thinks it does, let's start a discussion.

Thus I offer you the Leapman Factor, a fine example of joined-up thinking. It's not just what you do; it's what you would be doing, were you not doing what you do.

What are scientists for?

Now back to the profession of nutrition. An outsider might suppose that as a result of the boom in nutrition

professionals, world malnutrition problems would be at least well on the way to resolution. Such an idea misunderstands the nature of nutrition as a scientific discipline.

In his 1981 Boyd Orr Lecture, John Waterlow noted the view of some that 'nutrition is scientifically respectable only in so far as it is a branch of biochemistry or physiology' and the view of others 'that real progress in eliminating malnutrition can only come through social, economic and political change [and that] the kind of practical nutrition programmes which have been attempted are just patching up cracks'⁽²⁾.

Public health nutritionists no doubt will incline to the second position, while agreeing that policies and actions need to have a sound basis. But what sort of basis? Food parcels, no matter how chemically carefully constituted, do not stop famines and the causes of famine, any more than army surgeons stop wars.

The physician and anthropologist Paul Farmer takes the point further, saying: 'The actions of technocrats – and what physician is not a technocrat? – are most often tantamount to managing social inequality, to keeping the problem under control'⁽¹⁶⁾. On charity he quotes the Brazilian educator Paulo Freire: 'In order to have the continued opportunity to express their "generosity" the oppressors must perpetuate injustice as well. An unjust social order is the permanent fount of this "generosity", which is nourished by death, despair, and poverty'⁽¹⁷⁾.

The preservation of misery

So are nutritionists (as distinct from dietitians) part of the solution, or part of the problem? Take undernutrition, and say vitamin A deficiency. Professionals responsible for distribution and administration of capsules of vitamin A, and measurement of their effects, may and do say that their vision is of a world free from hunger, and specifically from xerophthalmia.

Is it? Or is it possible that maybe even below consciousness, one reason for the persistence of undernutrition and deficiency diseases is that professionals in the field expect these conditions to persist, act in ways that make their persistence more likely, and sense they are working within a system that ensures their perpetuation? Further, is it possible that the rise and fall of any epidemic disease usually has little if anything to do with the work of nutrition scientists?

However outrageous such questions may seem to be, I think they should be asked, and indeed should be a topic of debate. My sense is that such questions are taboo. Dedicated professionals are likely to react with anger to any suggestion that they may even if inadvertently be part of the problem they are trained to resolve. Overworked and underpaid people in the health professions, some of whose schoolmates went on to get rich, need to believe that they are doing some good in the world.

But most trades do not have lofty ideals. For example, here in Brazil it is legal to drive wrecks and many roads crumble. So you are always close to a *borracharia* (literally 'rubber shop'), typically a couple of guys in a shack with some gear, who patch up tyres and also often rebalance suspensions. The service is terrific. The system works, and nationally gives self-employment to many thousands of men who otherwise might have become criminals. Now, if you were to say to a rubber man 'Would you prefer a law that prohibited old cars, and a country all of whose roads were smooth?' I dare say that maybe after a pause to take in an unexpected question, he would say 'no'. His living depends on wrecked cars and roads. Likewise with other trades.

So what about other professions? Suppose you said to a lawyer: 'Would you prefer a world where there was no crime, all marriages were happy, all wills were consensual, and people made agreements among themselves?' My guess is that the answer would often be: 'As a citizen, spouse, parent and colleague yes. But professionally no – this would do me out of a job'.

So, you might say, the health professions have loftier ideals. Do they? Take physicians and surgeons. Asked if they would prefer a world where everybody looked after themselves, where rates of infectious and chronic diseases were a small fraction of what they are now, and people typically died of old age in good health, their first answer might be equivocal – that in such a world they would not be hopelessly overworked. But if you pressed the question, I guess their answer would be similar to that of lawyers.

So now, take nutrition professionals. If you asked them if they really and truly wanted to see an end to maternal and childhood undernutrition, I am sure the sincere answer would be yes. You might ask yourself such a question. But what is the fundamental difference between a rubber man, a lawyer or a surgeon, and a nutritionist? How come the halo? Responses please, for the letters column.

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Competing interests: I was director of the project that led to the 1997 WCRF/AICR report on the prevention of cancer, and am chief editor of the project that led to the 2007 report and to a further report on policy implications to be published early next year. Some items this month have reminded me that this journal is owned by the Nutrition Society, just as many scientific journals are owned by learned organisations. This creates synergy and also mutual respect. Do not expect a bituminous

onslaught on the works of the Nutrition Society in these columns. As regularly stated here, I am committed to the precepts of the New Nutrition Science. Its basic proposal, that nutrition has economic, social and environmental dimensions as well as its biological and behavioural dimensions, is evident in what I write.

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