

## Out of the Box

Gary Taubes is a New York-based science writer who thinks that the Atkins Diet indicates what causes and prevents overweight and obesity, and also what are the main nutritional causes of heart disease and the metabolic syndrome. His views have gained a lot of traction in the USA, and he is denounced as dangerous and duplicitous. But what if he is right? You need to know about him. What he says may well influence your family, friends, colleagues; even your research funding. It also might change your mind. Read on, this and next month. Plus two riffs: one on the great weight *v.* waist debate, one on booze as a slimming aid.

### Grave matters

John Garrow recently reminded me that as people age they lose some height. Indeed; I reckon my father shrank by over 5 centimetres (2 inches) in his last decade. Adult height is not a constant; at the same weight, people's body mass will eventually increase. The thought of gravity squashing us into spheroids is rather depressing.

Take me. I am 5 ft 11½ in (181.6 cm). Or so I have said, but today as I write I reflect on my age now being that of my father within his last decade. So I draw a deep breath, stand up ramrod straight against an upright of my floor-to-ceiling bookcases, pump up my synovial fluids, use the edge of T.L. Cleave's *Saccharine Disease* as a set-square across the top of my head, mark a line, and... 5 ft 10½ in (179.1 cm). This is one of my life's moments of truth. The grave gapes.

So my personal BMI calculations have been up the spout since some time, maybe way back. This morning I noted that at 79 kg (174 lb) I have a BMI 23.96. Wrong! Actually my BMI is 24.62. Bah! And to squeeze into the BMI 21–23 advised population range at just under BMI 22.99 recurring, I will have to be – pause for a moment on the calculator – not 75.5 kg (166 lb) but 73.7 kg (162 lb).

Also, veteran contributors to obesity reports<sup>(1)</sup> such as Phil James and John Garrow will know that the cut-off of BMI 25, below which weight is deemed desirable/normal/healthy, corresponds to the Metropolitan Life Insurance tables<sup>(2)</sup> for people with 'large frames'. The deal that everybody has a 'large frame' was done (in the USA, surprise, surprise) in 1973<sup>(3)</sup>. The corresponding BMI for the *upper* limit for 'medium frames' is a BMI of 22.5 for women, 22.9 for men. For those with 'small frames' the *upper* limit is a BMI of 20.6 for women, 21.2 for men.

Frame size is not an academic notion. It has been used by hard-headed actuaries charged to make money for their company. It makes sense. Observing men with broad shoulders, wide elbows, and brawny forearms, I ask myself, do I have a large frame? No I do not; using an old-fashioned do-it-yourself method, I can easily encircle my wrists between the thumb and fingers of my other hand. So I pencil in 25 more minutes running every morning for the rest of the decade. But maybe pounding the pavements is compressing my spine and thus pushing up my BMI. Will I end up like Tom or Jerry when squashed flat by a steamroller? Should I buy and use a rack?

Suppose I have a small frame? This would make my *upper* (note italics) desirable weight 70 kg (154 lb). For the moment I suppress this thought. Dieting does not work, remember<sup>(4)</sup>.

### Toss BMI in the trash?

The serious point lurking here is that the BMI system is indeed rough and ready, as John Garrow – who did as much as anybody to promote its use in the days when it was known as Quetelet's index, after the early 19th century Belgian astronomer Adolphe Quetelet – will acknowledge. At the same height and weight and therefore the same BMI, women have more body fat than men. Growing children can't be measured by BMI (crumblyies are a lesser problem). Because BMI is calculated in terms of the square and not the cube of height, short people have lower BMIs than tall people. Also, calculation of BMI is tedious when using the imperial system of inches and pounds retained in the USA.

In response it's said that exact measurements of body fat using whole-body imaging or dunking are complicated and expensive, and that multiple skin-fold measurements with trusty Harpenden calipers are also approximate as well as fiddly. True. It's also said that simple reasonably accurate methods of measurement serve public health best, especially when they are uniformly used in studies whose results therefore can be compared. Right.

A more serious charge is that the BMI system can be seen as counterproductive – part of the problem of obesity. Body mass indices correlate well with degree of body fatness only among groups of people all of whom are sedentary (or groups whose physical activity are much the same at any level). We all know that power athletes such as weight-lifters, and other mighty men of

muscle, are 'obese' on the BMI scale. But the same point applies much more commonly at lower weights. John Walker, one of a group I formed to run the London marathon in the early 1980s<sup>(5,6)</sup>, increased his weight from 83 to 84 kg in training; he started 'overweight', above BMI 25, and increased his BMI, but he was lean. My own weight when in training in those days was a mere 1–3 kg (2–7 lb) less than today, but my waist circumference was 4 in (10 cm) less than now – four trouser sizes smaller.

Everybody agrees that it's best not to be obese (well, almost everybody<sup>(7–9)</sup>). However, sedentary people who are overweight short of obese, or near the top of the BMI 18.5–25.0 range, and who want to reduce their weight, are best advised not to restrict their dietary energy, but to increase their physical activity, and thus raise their energy balance towards the level to which humans are evolved and adapted<sup>(10)</sup>. In this way they will gradually get rid of fat, and will also gain heavier lean tissue. In becoming positively healthy through improved physical fitness, they may drop a minimal amount of weight and therefore BMI – if any at all<sup>(11)</sup>. Indeed, if the physical activity includes anaerobic training – as it did with John Walker – weight and therefore BMI may increase, while body fat reduces. This makes focus on body mass as gauged by BMI highly problematic.

The answer is to estimate body fat by waist measurement and, to be a bit more sophisticated, waist–hip ratio. This is doubly better public health, given that abominable, sorry abdominal body fat is evidently more pathogenic than avoirdupois stashed elsewhere on the body. Currently waist measurements of 94 cm (37 in) for men, and 80 cm (31.5 in) for women, are suggested as upper healthy limits<sup>(12)</sup>. This can't be right. One circumference cannot fit all. What's needed is a scale related to height. Waist measurement is a simpler method than BMI. It is also a better gauge of fitness and health, and indeed of body fat.

A cynic might suggest that BMI is preferred by health professionals because it's rather technical and needs explaining. We all can measure our waists without help.

### Does boozing make you slim?

A friend of Humphrey Bogart once said: 'I never met Bogey, except that he had a glow on'; meaning that his body radiated so much heat from the effect of alcohol that it warmed those close by. As an inveterate serious round-the-clock drinker, he might have been necking the equivalent of a litre or quart of Scotch every 24 hours, which supplies well over 2000 kcal (8400 kJ). But he was thin. How come?

Also, how come that men who drink a lot of beer develop pot (or 'beer') bellies, and women who drink a lot of stout are often voluminous (or stout), whereas high-proof toppers are notoriously scrawny? Further, how come

that Luigi Cornaro<sup>(13)</sup>, Jean Anthelme Brillat-Savarin<sup>(14)</sup> and William Banting<sup>(15)</sup>, who from self-experiment and observation knew as much as anybody about the effect of foods and drinks on body weight in those days before physicians and researchers got in on the act, include alcoholic drinks in their prescriptions to live long, shed weight and be healthy?

Hutchison's dietetics textbook<sup>(16)</sup> reckons that the Banting diet included 1480–1650 kcal without alcohol. His self-prescription of two or three glasses of claret (or sherry or madeira) for dinner, another one or two glasses of claret for supper, and a tumbler of grog without sugar or one or two more glasses of claret (or sherry) as a night-cap, stacks up at around another 500 kcal – probably more, given the ambiguity of 'one or two' and 'two or three', and depending on the size of the glasses and tumbler. On this drinking man's diet Banting, who at 5 ft 5 in (165 cm) was a short man, dropped 35 lb (16 kg) in 38 weeks, and another 15 lb by a few months later. How come?

Here is a clue. Brillat-Savarin says 'shun beer as if it were the plague'. Banting identifies beer (and also milk, sugar and butter) as 'insidious enemies'. Cornaro, being Italian, drank only wine.

You may say that these ancient anecdotes are junk. I think not. Sure, Humphrey Bogart never spent a fortnight in an Atwater whole-body calorimetry chamber. Yes, dieting enthusiasts tend to push their arguments, and may overlook some foods and drinks that they are consuming. Even so, in the context of energy metabolism and body weight, there is something special about alcohol.

### You are not a bomb calorimeter

Nutrition students, and dieters, are taught that 'a calorie is a calorie', together maybe with a bit about the second law of thermodynamics; and learn that carbohydrates and protein supply roughly 4 kcal/g, whereas fat weighs in at 9 and alcohol at 7, together maybe with a bit about bomb calorimeters. Given all this, obviously people who want to shed weight should cut down dietary fat and cut out alcohol.

So you might think. However, our bodies are not bomb calorimeters, and a calorie is not a calorie, if this means that all nutrients are metabolised equivalently according to their energy value. Sure, alcohol is a concentrated source of energy. Indeed, heavy drinkers are liable to crash cars, punch friends, talk rot, raise fires, lose jobs, go nuts, die young. Absolutely alcohol is often addictive. But of itself it does not make you fat.

Here's the story. The body cannot store alcohol – hence the Bogey glow. Light to moderate drinkers usually consume alcohol as well as a full amount of food and other drink. As the word aperitif indicates, alcohol stimulates appetite, and so people who consume alcoholic drinks such as cocktails and wine, as well as full diets, are if anything liable to gain extra weight. But people who

consume alcohol instead of food and other drinks shed weight. This has been known for over 30 years<sup>(17–20)</sup> and maybe it's the first thing they teach you in nutrition science school just before you head out to the local bar, but it's news to me. No wonder diet and nutrition guidelines written by biochemists are so vague about alcohol.

We are all grown-ups and can weigh up the risks and benefits. So, here is the take-home (in a brown paper bag) message. Here's what to do if you want to shed weight, and don't care about hangover, stroke, throat, breast and colon cancers, the shakes, Wernicke–Korsakoff syndrome, wet beri-beri, weary willie, idiot offspring, mayhem, losing your licence, waking up at the end of the line, waking up in bed with somebody unknown to you, divorce, the sack, cirrhosis, amputation, destitution, laughing at your own jokes, insulting the boss, giving strangers the Glasgow Kiss, blow-torch breath, or the heebie-jeebies, any and all of which you may decide are as nothing compared with the horror of being overweight.

What you do is increase your booze intake to a couple of gottles of gine a day or equivalent in liquor, be patient, await results, and in due course you should be well within BMI 25... 23... But whatever you do, avoid sweet wines, port, cocktails or liqueurs. Egg flip is a no-no. Dry Martinis are OK shaken or stirred, but without the Martini. In Brazil, sugar-cane liquor (*cachaça*) is a good choice, up to a smaller 600 ml bottle a day, but no *caipirinhas*. Oh yes, and do not eat. Oh all right, maybe a couple of packets of pork scratchings.

Plus beer is out. Beer contains a substantial amount of sugar, whereas wine contains very little (apart from sweet white wines, and also sweet sherry), and spirits (liquor), including those distilled from sugar, none at all.

Maybe William Banting omitted to mention his other daily one to two glasses of claret. Maybe he drank it from balloon glasses.

### The Times it is a'changin'

The brilliant polemicist Christopher Hitchens says: 'In life we make progress by conflict and in mental life by argument and disputation'<sup>(21)</sup>. Indeed. Here comes the topic introduced at the beginning of this column.

Arrived in Washington recently to help launch the new global report on food, nutrition, and the prevention of cancer<sup>(22)</sup>, I freshened up in the Capital Hilton gym, searched out stores stocking goodies I can't get in Brazil, hurried on back to the hotel with three bags of books from Borders and Reiter's, and began to read one of them, a 600 pager with over 100 pages of notes and references<sup>(23)</sup>.

A nutrition scientist from the USA joined me at breakfast the next morning. We both chose lots of fresh fruits, followed by smoked salmon with wholegrain bread. He had coffee, I had tea. 'What do you think of Gary Taubes's new book?' I asked. 'He's a liar' was the reply, and 'He

got 700 000 dollars for that book'. Having expected a discussion of the subject rather than an assault on the person, I changed the subject.

There's a context. If you don't live in the USA you may not know that *The New York Times* is masterminding a shift in the national and also – because of its world reach – the international mood on food, nutrition and public and personal health. The paper and its magazine now give extraordinary prominence to the work of three writers, the staffer Gina Kolata and the freelancers Michael Pollan and Gary Taubes. They have sidelined the previous specialist reporters Jane Brody and Marian Burros, whose articles typically respect their sources.

They are tough customers. They do not run as a pack. Michael Pollan, whose most recent book<sup>(24)</sup> has been celebrated in an earlier column, and whose next book should be out as you read<sup>(25)</sup>, has a broadly similar take on food, nutrition, health and the state of the world as Marion Nestle, who has a new book out<sup>(26)</sup>, and Eric (*Fast Food Nation*) Schlosser. By contrast, Gina Kolata and Gary Taubes attack the current officially backed scientific consensus on the causes, prevention and treatment of overweight/obesity and chronic diseases<sup>(23,27–30)</sup>. They often understand their topics better than the academics they fillet, they are resourceful researchers and imaginative reporters, and they write with edge and bite.

Some years ago Gary Taubes went on the Atkins diet. He says he dropped 20 pounds in six weeks with no effort, and decided to find out why. In 2002 he made the Atkins diet once again a smash hit with a sensational lead article in the *Times Magazine*, 'What if it's all been a big fat lie?'<sup>(30)</sup>. He amasses the evidence against dietary fat making you fat. Instead, he fingers carbohydrates or (both he and Robert Atkins<sup>(31)</sup> are fuzzy here) refined carbohydrates, or foods made with white flour and sugar. He says a mass of evidence on sugar as a major cause of CVD as well as obesity has been ignored, suppressed or swept aside for almost half a century.

Medical and nutritional leaders hate this. Jack Farquhar of Stanford University said: 'I think he's a dangerous man. I'm sorry I ever spoke to him.' Jules Hirsch of Rockefeller University said 'Taubes has craftily brought this back from the dead somehow but he can't prop it up for too long.' James Hill of the University of Colorado said: 'Taubes sold out... He gave his readers what they wanted to hear. But what people want to hear is killing them'<sup>(32,33)</sup>.

That's the stuff! Never let it be said that nutrition is dull. *Good Calories, Bad Calories* (*The Diet Delusion* in the UK) is the fruit of five years of research. Read it and see what you think. Next month I'll say what I think.

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*Authorship responsibilities:* People who contributed ideas are acknowledged in the text and usually in the references below, except I can't remember the source of the Bogey quote. Other sources are referenced. Anecdotes, the BMI and booze riffs, and hints of apostasy, by

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