

2012 February blog
Geoffrey Cannon



Michael Pollan is my hero this month. Here he is above, putting a point across to students in California, where he lives now. Together with Association members Walter Willett and Marion Nestle, he is the most imaginative and influential commentator on food, nutrition, health and well-being in the US, and his website has a worldwide following.

Having no formal training in nutrition, he is not constrained, and indeed sees current conventional nutrition science as more of a problem than part of any solution. Certainly, bounds need breaking. Most valuable guidance on nutrition may well continue to come from commentators whose main knowledge is not just of nutrition as a biological science, but of bigger issues.

Thus my three items this month. First, I suggest why so many men in some countries obsess about huge breasts. Then a recent account of Lord Byron as one of the first ever yo-yo dieters prompts me to polish my thesis that dieting makes you fat. Then I question a tenet of public health. Finally, I continue to celebrate Michael Pollan.

Body shape. Breasts. Breastfeeding

Why some men obsess about huge breasts



Venus (left), Nell Gwyn (right). Throughout history and in many countries now, the image of allure and beauty is not of women with enormous breasts

As quoted by Karl Popper: ‘Theories are nets: only he who casts will catch’ (1). He also stated: ‘Bold ideas, unjustified anticipations, and speculative thought are our only means for interpreting nature... And we must hazard them to win our prize’.

So here comes a bold idea and speculative thought which yes, honest – read on – connects with public health nutrition. It responds to the question: Why do men in some countries – but not others – obsess about enormous breasts? Why correspondingly do women in many countries feel a need for bigger breasts, and often subject themselves to plastic surgery which is sometimes botched and disfiguring, and possibly dangerous? This surely is very strange. The recent scandal concerning sub-standard and sometimes fragile implants using industrial-grade silicone, has turned up some staggering figures. In 2010 in the US, a total of 318,123 breast ‘augmentations’ were carried out, and in the UK breast enlargement, at around 25,000 a year, is also the most common form of cosmetic surgery (2,3). What’s this all about?

What’s with big breasts?

No, it is not obvious that breasts that are big relative to the rest of the body are beautiful or even attractive. Historically such an attitude is practically unknown. Last month I visited the British Museum, and here above (left) is a Roman sculpture of Venus – the Greek Aphrodite. Above (right) is a painting of Nell Gwyn, a mistress of King Charles II. Their breasts, while substantial, are nowhere near the size now often seen as most desirable.

Now too, big breasts are not everywhere considered beautiful. The Indian, Chinese and other Asian women who are usually seen as most lovely, are small and slight compared with women from North America and most European countries, and

usually have small breasts. Women from the Sudan, celebrated for their beauty, are tall but small-breasted. In Brazil where I live, the shape of female beauty is that of the violin: wide hips (well-adapted to bear children), and small breasts.

There are no practical advantages in being big-breasted (4). For comfort and ease of movement it makes more sense to reduce naturally big breasts than to enlarge naturally small breasts. Big breasts ‘get in the way’ and can make sleep uncomfortable – all the more so if artificially augmented. They impede sporting activity. They become pendulous in early adult life, and need constant support. It may be that the more breast tissue a woman has, the higher her risk of lumps and cysts and breast cancer (5). Ironically given their purpose to enhance allure, breast implants can reduce sensitivity, and also can impede breastfeeding. Later in life, sagging big breasts are obviously unattractive, whereas the body of a small-breasted older woman may remain beautiful judged by common standards. The pressure on women to gain bigger breasts and be ‘well endowed’ seems like some sort of response to male notions of display (6). But what goes on?



The decades of change. Left, a array of flappers photographed in the 1920s. Right, 1940s: Jane Russell after superstructure design by Howard Hughes

Howard Hughes and World War 2

The modern craze for big breasts can be placed and dated fairly precisely. It began in the US in the 1940s. In the 1920s and 1930s, fashionable women in the US, the UK and other ‘Western’ countries were usually small-breasted. The ‘flapper’ style, shown above left, free and easy with no emphasis on breasts or hips, not very different from some modes of fashion now, was an expression of emancipation from the corset, and of women enjoying and being themselves.

The obsession has four driving forces. The first three are tightly related: movies, war, and Howard Hughes. The maverick engineer Howard Hughes designed the biggest seaplane in the world, and also developed the underwired ‘push-up’ or ‘bullet’ bra for

Jane Russell, the first movie star to be projected as big-breasted. In the Second World War, Hollywood movies used vastly magnified images of explicitly erotic parts of women – exposed thighs and breasts – to cheer up GIs, many still boys, in danger far away from home. ‘Pin-up’ images proliferated at the same time.

The abiding reason – formula

But this does not explain why so many men in some but not other parts of the world are still drawn to enormous breasts, and why so many women make their breasts artificially big. Now for the bold idea. The fourth and abiding factor is premature weaning. In the US, breastfeeding was very rapidly replaced by bottle feeding between the middle 1930s and the 1950s (7), and rates of exclusive breastfeeding after the first weeks of life still remain very low, while rising somewhat since the 1980s. Premature weaning from the breast, the source of emotional as well as biological nourishment, is liable to traumatise infants. The last sight a prematurely weaned male child will see of his mother’s exposed breast will be of a colossal object of intense and then frustrated desire. And therefore... Bingo! (8,9). You get the idea.

Desire, craving, obsession and addiction are all crucial drivers of dietary patterns, but often remain ‘off the map’ of nutrition as taught and practiced. This is a mistake. Seeing nutrition as a social and behavioural as well as a biological science makes the idea suggested here easier to accept, at least as a possibility. Up to a point it can also be investigated. Rates of breastfeeding and bottle feeding can be compared with the extent to which enormous breasts are seen as alluring, historically and in different societies. Case-control studies within specific countries and societies, could compare groups of men breastfed for a relatively long time with those who were taken off the breast in very early infancy. Migrant studies could also be illuminating (10).

Randomised controlled trials? Unlikely, if only for ethical reasons. They might be fun, but who with the vast sums of cash required would want to fund them? In many areas of public health and public policy generally, evidence of types currently agreed to be a sound basis for judgements will never be forthcoming. So either we all sit on our hands and watch our world continue to disintegrate, or else prepare to base some judgements and actions on common sense and reliable attested observation. Now, there’s a thought...

Notes and references

- 1 Popper K. *The Logic of Scientific Discovery*. London: Routledge, 2002. First English edition, 1959. First published in German, 1934
- 2 Cochrane K. Boom and bust. *The Guardian*, 12 January 2012.
- 3 These figures include the small proportion of breast implantations carried out after mastectomies.

- 4 Unless we count netting bankers with a fetish for big bazooms.
- 5 This speculation is confounded by the fact that most such women become sexually mature early, and have very many more periods than has been normal throughout history.
- 6 Boston Women's Health Collective. *Our Bodies, Ourselves*. 2011 edition. New York: Simon and Schuster.
- 7 Fomon S. Infant feeding in the 20th century: Formula and Beikost. *Journal of Nutrition* 2001; **131**: 409S-420S
- 8 An effect of severe trauma at any time of life is to 'freeze' victims at the time of the shock. Unless they can get 'past it', psychologically and emotionally they stick at that point.
- 9 Obvious questions spring to mind. One is, why only men, what about prematurely weaned females? Maybe the desire for their own big breasts is not just driven by response to male desire.
- 10 Globalisation blurs distinctions. As from the 1960s, *Playboy* magazine massively amplified fascination with giant breasts, and internet pornography, also accessible worldwide, also features massive naked breasts. A control group might now be hard to find. My guess is that among high-income sectors in India, China and Japan, rates of breast augmentation are now rocketing.

Body mass. Evolution. Dieting makes you fat

'Solutions' that actually are problems



Celebrities who became very fat: Lord Byron, Orson Welles, Marlon Brando. They were victims of yo-yo dieting regimes, as very many millions are now

Many if not most valuable guides to a good life well led (or, come to that, to ruin and damnation) are 'off the map' of current conventional science. As said above, any questioning of generally accepted ideas necessarily involves surmise and speculation. 'The evidence' – in the sense of findings of original research published in accredited specialist journals – usually comes from studies that accept or assume current consensual positions. These may be well-based. They also may be narrow, outdated, a poor fit with the facts, or just plain wrong (1).

For example, lay people and specialists alike, still tend to think that apart from cases of inborn errors of metabolism, obese people are therefore greedy or lazy. Sure, some are. Some people do freely eat too much, and others really do decide to be very sedentary. But moralising over-emphasises voluntary choice, and is usually mistaken. We live in an ‘obesogenic’ environment, bombarded with propaganda for energy-dense, fatty, sugary ultra-processed snack, drink and other products.

One popular view in the specialist literature, which I think is basically wrong, is that some people are born to be fat, with a built-in ‘set-point’ of weight, which thwarts all attempts to reduce weight (2). To my way of thinking there’s another reason why people become fat. It’s generally assumed that diets – in the sense of regimes that sharply reduces energy intake – do or should make you slim. This seems obvious, to the point of not even needing investigation. Sure, if you go on a diet supplying energy well below your body’s turnover, while on the regime your weight reduces – although the initial reduction is almost all of water, thereafter a lot is not body fat, and reduction slows right down after a while.

But as practically everybody who has dieted knows, once the regime is ended, weight rebounds – and less well known, the net result for typically sedentary people is an increase in the amount or proportion of body fat. Further, in my opinion, it is the dieting regimes themselves that frustrate the desire of the dieter to slim down (3).

Byron’s paradox

Every January the electronic, broadcast and print media are full of stories about dieting. *The Guardian On-Line* carried a story on Lord Byron (left above, in a slim phase) as the first celebrity dieting expert (4). In his short adult life Byron’s weight fluctuated between 57 kilograms (126 pounds, or 9 stone) and 89 kilograms (196 pounds, or 14 stone). His regime was commonly followed by members of the British upper classes in the early nineteenth century.

Here it is, briefly. For breakfast, he had a thin slice of bread and a cup of tea, and for supper, mainly vegetables. Between meals, green tea without milk or sugar, soda water, potatoes drenched in vinegar, and dry biscuits. Plus cigars. This VLCD (very low calorie diet) boosted by a carcinogenic appetite suppressant, would work for anybody – at the time. As said in the *Guardian* piece, Byron ‘alternated between binge eating and near starvation, wrapped himself in numerous layers of clothing to sweat off the pounds, and weighed himself obsessively’. Sounds familiar?

In her masterly biography (5), Fiona MacCarthy records two scenes. The first was when he was ‘getting a grip’ once again. ‘Venice and Ravenna 1819. Moore found Byron greatly changed, much fatter in figure and puffier in face... Byron took his later breakfast standing: one or two raw eggs, a cup of tea with no milk or sugar, a dry biscuit – he was still following his abstemious diet’. The second was when he had

yet again 'let himself go'. 'Pisa 1821-2. Not the least of the surprises for Hunt was that Byron had become almost unrecognisably plump'.

Fiona MacCarthy adds: 'He kept up a more or less obsessive dependence on dieting and purgatives all through the years of his celebrity'. His pictures always show him as beautiful. He sat for portraits soon after completing dieting regimes. His death came after bouts of starving and purging and finally, bleeding.

Yo-yo dieters

He was not a dieting master but a dieting victim, as so many millions of people are now. He practiced what's known now as weight cycling, or 'yo-yo dieting' – semi-starvation regimes of various degrees of frequency and severity, that once completed provoke gorging, followed by starving, and so on. As anybody who has occasionally or regularly reduced body weight and fat by sharply reducing their consumption of food will know, once the regime is stopped, craving for food is indeed compulsive, out of control (6-8).

Four other celebrity yo-yo dieters are Orson Welles (centre, above), Marlon Brando (right, above), Elvis Presley, and among the living, Oprah Winfrey. They all have tended to purge, fast, gorge, and then starve themselves in attempts to get into shape for performances and public appearances. Orson Welles more or less gave up, and became an obese character actor. Marlon Brando, vast when he played Kurtz in *Apocalypse Now*, was filmed in the shadows, and afterwards became a recluse, as did Elvis Presley.

Dieting makes you fat

My counter-intuitive thesis is that dieting makes you fat. The overall effect of regimes that supply substantially less dietary energy than the body needs, particularly when these are repeated as they usually are, is to increase the proportion and the volume of body fat. The reason, is the inappropriate and dangerous and even irreversible impact of the regimes themselves on human metabolism. The driving force here is not psychological, but physiological (6-8).

'Going on a diet' – low-energy diet regimes – would be a good way to reduce body fat if the human body was a machine with no built-in adaptive powers. In which case, logic suggests that the job would be done by just one regime. Shed the desired 10 or 30 kilograms, or 25 or 75 pounds, and behold! The new svelte or slim shape. However, people who 'go on a diet' typically repeat their regimes, often experimenting with some new or updated heavily publicised method. The 'Life' section of an early January *USA Today* was headed 'For success, choose a diet that fits you' (9). Typically continual dieters are made more and more miserable, because they believe that the regimes succeed, and that it is they that are failures. Next time,

they think grimly, I will exert more will-power. And then this fails and they think it's their fault.

Surviving famine

So what's up? Most public health nutritionists and allied professionals know by now, I hope. Here very briefly is the thesis. The human species is evolved and adapted to survive periods when food is scarce, including times of famine. The most successful populations originally were those that over many hundreds of generations travelled vast distances out of Africa across the world, and thus were exceptionally well selected to survive long periods of intense hardship. In such situations humans carry their larder inside them, in the form of body fat. The communities that evolved marvellously effective mechanisms to store and retain fat were most likely to survive. These are our original ancestors. The selective pressure was intense and relentless.

As descendants of these pioneers our fundamental physiology is the same as that of the early most adaptable and successful variants of *Homo sapiens*. In historic and current times, when food was or is scarce but eating patterns normal, populations are almost all thin. Alternatively, when food is abundant and plentiful, a proportion of populations become fat simply because they are consuming more than their bodies need. Very sedentary populations are in a bind, because their energy requirements are artificially low, and unless they take care to select especially nourishing food, they are liable to be short of and hungry for various nutrients.

We know what we want when we go on a dieting regime, but our bodies do not. They react to protect us against severe food insecurity or shortage, and famine (8, 10-11). The regime switches on physiological mechanisms that slow our metabolism down, feed off our lean tissue and preferentially conserve body fat, and after a while eliminate any sense of hunger. The evolutionary purpose is obvious: this gives the best chance to survive over a long period of severe food shortage. The moment the regime ends, the other mechanisms then switched on have a dramatically different purpose, which makes complete sense in the light of the evolution and adaptation of the human species to survive extreme hardship. They cause intense and constant craving for food, almost no matter how much is consumed (12). They also pack the body's own larder of fat, stored up for the next period of famine. And so on, and on.

This is why diet regimes, which have become a booming business, are not a solution but a growing part of the problem of overweight and obesity (3). Lord Byron made a mistake. Instead of soda water and cigars, he should have continued to swim the Hellespont and the canals of Venice, as well as maintaining other horizontal physical activity.

Notes and references

- 1 There is also the issue of where the money for research comes from. Generally, funders have at least some degree of ideological or commercial interest in the results of investigations they support. Many studies of dieting are funded by the dieting regime industry; these do not conclude that energy-restrictive diets are typically ineffective, let alone damaging.
- 2 Variations of set-point theory are advocated by investigators notably in the US. They are basically wrong. The theory has a fair fit with the facts within countries like the US or UK whose populations are more or less settled, with dietary patterns that are relatively homogenous. But it fails to explain why the average weight of populations in low-income countries is much lower than those in high-income countries, and indeed why average population weight in so-called 'developing' countries has risen sharply since the 1980s.
- 3 No, I am not saying that all methods designed to reduce body fat are a cause of the problem they are meant to solve. The effective approach is to transform dietary quality, which includes cutting right down on ultra-processed products, and to build physical activity into everyday life. But any method (short of surgery) may well be futile for people who have wrecked relevant aspects of their physiology by constant yo-yo dieting, also known as weight cycling.
- 4 Anon. Pass notes 3012: Lord Byron. *The Guardian*, 4 January 2012.
- 5 MacCarthy F. *Byron. Life and Legend*. London: Faber and Faber, 2002.
- 6 Cannon G, Einzig H. *Dieting Makes You Fat*. London: Century, 1983.
- 7 Cannon G. *Dieting Makes You Fat*. London: Virgin, 2008.
- 8 As told in the two books above. The second, completely revised and updated, maintains the same thesis as the first version. The concept that 'dieting makes you fat' is now backed by a mass of epidemiological and physiological investigation. It also explains the now very common anorexia-bulimia syndrome, which in my view is wrongly classified as psychological.
- 9 Hellmich N. For success, choose a diet that fits you. Experts size up different approaches to weight loss. *USA Today*, 9 January 2012.
- 10 The 2003 WHO/FAO '916' report makes a tentative step in the direction of the 'dieting makes you fat' thesis. It identifies 'rigid restraint/ periodic disinhibition eating patterns' as a possible cause of obesity. Its mistakes are to imply that this 'weight cycling' is uncommon, whereas it is practically typical, and to identify it as a psychological phenomenon, whereas when diet regimes signal the body to withstand famine the effect is physiological, impossible to control by choice or will.
- 11 The British nutrition scientist Andrew Prentice, who scorned the first version of *Dieting Makes You Fat*, now seems to be converted. Prentice A. Fires of life: Struggles of an ancient metabolism in a modern world. *British Nutrition Bulletin* 2001; **26**: 13-27.

- 12 There is a meticulous account of this phenomenon in *The Biology of Human Starvation*, (Keys et al, University of Minnesota Press, 1950), the two-volume book which includes accounts of the effect of prolonged dietary restriction after the regimes had ceased.

Tenets of public health

Responsibility at birth and for death



In the midst of life we are in death... Faces and flowers commemorating a woman and a man who died young, in Tiradentes, Minas Gerais, Brazil

Here are first thoughts about some basic public health issues: birth, life, and death. First, death, which many of us try to push away: but life implies death, and it makes little sense to think of life without taking account of our mortality. Throughout human history, and still now in much of the world, death is considered a normal part of family and community life, which it should be. This is all the more so where and when death in childbirth is common, and people often die young as a result of infections or accidents. Not so long ago, the front rooms of small houses in Britain were reserved for special occasions, which included the display of family members after they had died. As one direct connection with nutrition, the wakes held to celebrate the dead were clan or community feasts at which the best traditional food and drink was prepared and consumed abundantly. By contrast, many adults I know have never seen a dead human body. This is strange and significant.

During the new year break I visited the historic town of Tiradentes, in my state of Minas Gerais, Brazil. A churchyard there includes *gavetas* – drawers – in which the bodies of local people are stacked in spaces above ground, together with photographs of them, cloth or plastic flowers, and significant personal items, as shown above. The objects on the shelf at left include what looks like a thermos flask for coffee. This type of memorial, common in Catholic countries, may seem blatant to those brought up to conceal death and to put dying people in hospitals, in white rooms, surrounded by strangers and machinery. To me it is touching, being face-to-

face with the face of the person whose remains are not buried but are behind, in the drawer.

Birth, life, death

One tenet of public health teaching and practice, including aspects that involve nutrition, is that in any population, the lower the rates of death at the time of birth and infancy, the better, and the longer the average lifespan, the better. On the whole this surely is right, but it is an assumption that needs further thought.

Specifically, I think the numbers for ideal survival in infancy in economically wealthy 'developed' countries, are too high. In such societies, too much value is placed on the survival of extremely premature or very deformed or damaged newborns, who until childbirth became medicalised would have been smothered by the midwife. Is prolonging their existence in the interests of the parents?

Comparably, lifespan prolonged in old people with serious diseases is not a good measure of population health, and certainly not of well-being. Later in life, people who are incapacitated and suffering from terminal disease, and who wish to die, surely should be welcomed to do so, in friendly and pleasant surroundings; and the families of people unlikely to emerge from comas should be supported to withdraw 'life' support systems.

Yes, this means that professionals, family members, and terminally ill people themselves, should have the right to end human life. Yes, I hear some of the vehement arguments against this view. But refusal to intervene implies that a life that even may be no more than a vegetable existence, perhaps sustained by increasingly 'heroic' and very expensive medical or surgical intervention, is sacred. To me this position is absurd.

Abandonment of the quasi-religious position implied by 'sacred', has a number of uncomfortable implications. Here are three. One is that the existence of very severely and irreversibly damaged newborns should be openly terminated. Two is that abortion should be freely available on request. Three is that people in whatever state of health who decide to end their own lives should be given scope to do so (1).

The best measure of population health is, I suggest, exactly that – the health and well-being of populations. Which is better: populations who on average die around say the age of 75-80, after suffering disability from serious chronic diseases for say an average of 15 years; or populations with average lifespans of say 70-75, whose people are rarely disabled and who die in general good health? You see which choice I would make. The implication is that we should pay less attention to age at death, and much more to the age of onset of serious and then permanent disability.

Correspondingly, the principal priority of public health nutritionists concerned with physical health, should be primordial prevention – stopping disease before it starts.

Notes

- 1 Yes, mistakes can be made. Yes, subject to rules and guidelines requiring regular monitoring. One vital reason for abortion and suicide being fully sanctioned, is that this would give time and space for the most concerned people to act in their own best interests and those of the people closest to them.

Michael Pollan

In defence of common sense

Whom did we rely on before the scientists (and in turn governments, public health organizations, and food marketers) began telling us what to eat? We relied of course on our mothers and grandmothers and more distant ancestors, which is another way of saying our tradition and culture. We know there is a deep reservoir of food wisdom out there, or else humans would not have survived and prospered to the extent we have. This dietary wisdom is the distillation of an evolutionary process involving many people in many places figuring out what keeps people healthy (and what doesn't), and passing that knowledge down in the form of food habits and combinations, manners and rules and taboos, and everyday and seasonal practices, as well as memorable sayings and adages.

*Michael Pollan, 1955 –
Food Rules. An Eater's Manual (1)*

In his latest book *Food Rules* (1) Michael Pollan says: 'Nutrition science, which after all only got started less than two hundred years ago, is today approximately where surgery was in the year 1650 – very promising, and very interesting to watch, but are you ready to let them operate on you? I think I'll wait awhile'. For any nutrition scientist his take on food, nutrition, health and well-being is bracing. His 64 rules, refined and honed from thousands suggested to him, contain some gems. Thus 'Avoid food products that make health claims', 'Eat only foods that will eventually rot', 'It's not food if it's called by the same name in every language', 'Eat animals that have themselves eaten well', 'Don't eat breakfast cereals that change the color of the milk'.

A companion volume could cite dietetic rules already stated throughout the thousands of years before the rise of modern science. One of my favourites is that of Horace Fletcher, the great masticator', whose followers included Henry James and Mark Twain. He enjoined everybody to chew food and slosh drink at least 32 times before swallowing.

In common with almost all US commentators, Michael Pollan's focus here is on personal advice and guidance. His earlier books (2,3) explore some of the social, political and economic reasons for the terrible shape of the US national food system, body politic, and waistline. His polemic against high-fructose corn syrup, the first chapter of *The Omnivore's Dilemma* (2) is a masterpiece. It's time to weave his ideas into the formal teaching and practice of nutrition.

References

- 1 Pollan M. *Food Rules. An Eater's Manual*. New York: Penguin, 2009.
- 2 Pollan M. *The Omnivore's Dilemma. A Natural History of Four Meals*. New York: Penguin, 2006.
- 3 Pollan M. *In Defense of Food. An Eater's Manifesto*. New York: Penguin, 2008.

Acknowledgement and request

You are free to make use of the material in this column, provided you acknowledge the Association, and me please, and cite the Association's website.

Please cite as: Cannon G. Why some men obsess about huge breasts, and other items. [Column] Website of the World Public Health Nutrition Association, February 2012. Obtainable at www.wphna.org

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This column has been reviewed by Hetty Einzig, Fabio Gomes, and Claudio Schuftan. Michael Pollan likes this column, the Association website, *World Nutrition*, and in particular Carlos Monteiro's commentaries on ultra-processing, and spreads the word on his website. .

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