

National Assembly for Wales

Children and Young People Committee

CO 15

Inquiry into Childhood Obesity

Evidence from : Zoë Harcombe

I am an author and obesity researcher. I read, write and talk about obesity full time and would welcome the opportunity to share my knowledge and insights as part of the oral evidence sessions.

I submit a general explanation of the obesity epidemic and then I shall comment specifically on points 2, 3 and 4 of the inquiry. I also submit a one hour presentation recorded at Cardiff Metropolitan University in 2012 on the cause of the obesity epidemic and the measures needed to reverse it. (<http://www.theobesityepidemic.org/2012/02/the-obesity-epidemic-lecture/>)

The Obesity Epidemic

“The previous nutritional advice in the UK to limit the intake of all carbohydrates as a means of weight control now runs counter to current thinking and contrary to the present proposals for a nutrition education policy for the population as a whole... The problem then becomes one of achieving both a reduction in fat intake to 30% of total energy and a fall in saturated fatty acid intake to 10%.”¹

Proposals for nutritional guidelines for Health Education in Britain (1983)

And so started the obesity epidemic...

In a study of formerly obese people, researchers at the University of Florida found that virtually all said that they would rather be blind, deaf or have a leg amputated than be obese again.² That is the extent of our desire to be slim and yet two thirds of people in the UK, USA and Australia are overweight and one quarter obese. Why?

To be slim, to achieve the thing we want more than our sight, hearing, or mobility, we are told that we just need to “eat less and/or do more.” Quite specifically, the advice is “One pound of fat contains 3,500 calories, so to lose 1lb a week you need a deficit of 500 calories a day.”³

So, why don't we follow the advice? Why do we have an obesity problem, let alone an epidemic, when we so desperately want to be slim?

I set out to answer that question in the late 1980's and this submission is a summary of my findings. In 1972, World Health Organisation statistics recorded 2.7% of UK men and women as obese. Fewer than three decades later, in 1999, the same statistics found 22.6% of men and 25.8% of women were obese.⁴ Two thirds of UK citizens are now overweight or obese.

The USA started from a slightly higher base and displayed a virtually identical trend, with 70% of Americans currently overweight or obese.

The starting point for understanding the obesity epidemic must be: what changed in the late 1970's/early 1980's? Was there one occurrence that could explain the sudden and dramatic increase in obesity?

Yes there was. In 1977 the USA changed its public health diet advice. In 1983 the UK followed suit. A more accurate description would be that we did a U-turn in our diet advice from “Farinaceous and vegetable foods are fattening, and saccharine matters are especially so”⁵ to “base your meals on starchy foods”. Obesity has increased up to ten fold since – coincidence or cause?

We changed our advice for the wrong reason. We changed it to the wrong advice.

In the 1970’s, the fact that (fewer than six) people (in one thousand) were dying from heart disease was of great concern to America. American public health advisors wanted a solution. Ancel Keys had spent the 1950’s trying to prove that cholesterol consumption was the cause of heart disease. He failed and he acknowledged this. He then tried to prove that saturated fat consumption causes heart disease, despite this having no logic, not least because saturated fat and cholesterol (and unsaturated fat) are found in the same foods. At the time that Senator McGovern was looking for the first *Dietary Goals for the United States*, the Keys theory was *not* the only idea available for consideration, but it was the best promoted. The rest, as they say, is history.

The USA changed its dietary advice and the UK followed. We told people that fat was bad and carbohydrate was good not because we *knew* either fat to be bad or carbohydrate to be good. At the time we changed our advice, the only ‘evidence’ for fat being bad was a suggestion that, in seven handpicked countries, heart disease tended to be related to cholesterol levels, which tended to be related to saturated fat intake and so (that must mean) heart disease tended to be related to saturated fat, (although cholesterol intake was not directly related *per se*). Association was never proven and causation was never alleged. We had no evidence that carbohydrate was good – just the admission that, if we tell people not to eat fat they must eat something and “it was advised that starchy carbohydrates should replace the reduction in fat as an energy source.”⁶

We have not looked for proof since:

- “There has been no controlled clinical trial of the effect of decreasing dietary intake of saturated fatty acids on the incidence of coronary heart disease nor is it likely that such a trial will be undertaken.” (COMA, 1984).⁷
- “It has been accepted by experienced coronary disease researchers that the perfect controlled dietary trial for prevention of coronary heart disease has not yet been done and we are unlikely ever to see it done.” (Truswell, 1994).⁸
- “The ideal controlled dietary trial for prevention of heart disease has not yet been done and it is unlikely ever to be done.” (FSA, 2009).⁹

The ultimate irony is that if Keys did show anything, he showed a relationship between the 100% carbohydrate, sucrose, and heart disease: “The fact that the incidence of coronary heart disease was significantly correlated with the average percentage of calories from sucrose in the diets is explained by the inter correlation of sucrose with saturated fat.”¹⁰ Decades later we have not corrected this fundamental mistake and we still list biscuits, cakes and pastries – carbohydrates first and invariably *unsaturated* fat second – as saturated fats.¹¹ We changed our advice to try to alleviate heart disease and, as a result of this catastrophic confusion over macronutrients, our citizens are consuming more of the foods that should have been clearly identified as the culprits in the first place.

We have forgotten that we eat for nourishment. We have a vital need for nutrition and we have lost this basic value in our current dietary advice. If we had stayed true to the principle of why we eat, the most nutritious foods would be evidential in any analysis of fat, protein, vitamins and minerals. They are the liver, sardines, milk, eggs and greens favoured by our elders and not the fortified cereals and margarines favoured by conglomerates and, reprehensibly, far too many dietary advisors alongside.

An industry originated marketing campaign, five-a-day, has become the leading public health message in tens of countries across three continents and it is spoken of as if there is overwhelming evidence behind it, when the reality is that there is none. Worse, if the proponents of pick-a-number-a-day knew what Dr Richard Johnson¹² and Dr Robert Lustig¹³ know, they would surely revise their opinion of fructose and never mention fruit juice again.

We have slandered and libelled the most nutritious macronutrient – fat and we have promoted and praised the least nutritious macronutrient – carbohydrate. We don’t need to look far to understand why. The most nutritious foods on the planet are those provided by nature, naturally rich in protein and fat. The most

profitable foods on the planet are those provided by food manufacturers, unnaturally abundant in sugar, flour and vegetable oils.

As the demonisation of real food has gathered pace, fledgling and long standing food and drink companies have become multi-billion dollar empires. “The world’s largest convenient food and beverage company”, PepsiCo, is bigger than 68% of the countries in the world.¹⁴ An immense and profitable industry has grown on the back of the low fat, high carbohydrate advice that we invented. Human beings have become high fat and low health in parallel.

When people talk about “the obesogenic environment”, they do so as if this were some inexplicable phenomenon that crept up on the world and made everyone fat. *We created* this obesogenic environment; it did not happen to us. We told people to avoid real food and to eat processed food. We passed legislation to introduce trans fats and sweeteners into our food chain. We allowed our children to be given toys, cartoon characters and junk food by ‘strangers’.¹⁵ We have facilitated the comprehensive infiltration of the food and drink industry into our dietary advice – nowhere more so than in the fattest nation on earth, America, where we have gone as far as legislating the relationship, so that only the ‘food’ industry sponsored American Dietetic Association can advise the unsuspecting public. We put cakes, cola and sweets on government posters, pyramids and plates of role model healthy eating. We welcomed food and drink industry funds turning global sporting events into advertising arenas for their products. We continue to revere sports and pop stars, who are paid millions of dollars to endorse products that they likely don’t consume themselves. We care more about the profitability of Kellogg’s and McDonald’s than we do the health of our citizens. Prove me wrong governments and take decisive and immediate action. Just don’t act like this environment is nothing to do with you.

Had we changed our advice for the wrong reasons and to the wrong advice without consequence, we would have been fortunate. We have not been fortunate. We have paid an enormous price for this change; with a tenfold increase in obesity. Furthermore, more people are continuing to become obese and the obese are continuing to become more obese and we have not yet had the first generation born to our most obese generation. It is not unreasonable to say that on the back of one man’s study, first adopted by one American Governor and then the world, we have an obesity epidemic.

As obesity doubled for UK adults between 1972 and 1982 and then almost doubled again by 1989 and then almost another time by 1999, the urgency and desperation to lose weight was palpable. The advice that people were given was the same as the advice that made them overweight in the first place: eat less fat – eat more carbohydrate; eat less real food – eat more processed food.

Eat less/do more became such a common mantra that we stopped looking for the real solution to obesity; despite the fact that we had evidence going back to 1917 that eat less/do more does not work.¹⁶ The level of failure was quantified in 1959 by Stunkard and McLaren-Hume at 98%.¹⁷ Another irony could be that we ignored the brilliant and unbiased study done by Ancel Keys and favoured instead the one where he set out to prove an already held view. Keys did the definitive study to show exactly what happens when we manage to restrict calorie intake and that even this can only be achieved ‘in captivity’, due to the hunger that ensues. We know from The Minnesota Starvation experiment that calorie restriction results in a disproportionate reduction in energy expenditure and metabolic activity and that the ‘circular reference’ will defeat the dieter in weeks.¹⁸

As we tried to fix a crisis, without making the connection that we started it, we compounded the challenge by proceeding on the basis of flawed assumptions – theoretical and empirical.

The theoretical error we made was to simplify the application of the laws of the universe to the world of dieting – we got the first law wrong and ignored the second law. If we had considered both properly, we would have realised that obesity is not a simplistic outcome of energy in (overweight people eat too much) and/or energy out (overweight people are too sedentary). We would have realised that energy in can only equal energy out if the body makes no internal adjustment whatsoever. Not only is this biochemically impossible, the internal adjustment made by the body, in response to changes in energy intake and/or energy requirements, is likely far greater than any change in fat reserves that the body can or will make.

Empirically, we got hold of a calorie formula, we know not from where, which we hold to be true and continually prove to be untrue. One pound does not equal 3,500 calories. We will not lose one pound if we create a deficit of 3,500 calories. The most fundamental tenet of the diet world fails basic scrutiny. Worse, seven public and obesity health authorities (Department of Health, NHS, British Dietetic Association,

Dieticians in Obesity Management, Association for the Study of Obesity, National Obesity Forum and National Institute for Clinical Excellence) all failed to prove their formula and none knew from whence it came. If we carried on teaching children that London is the capital of America, when we knew this to be wrong, there would be uproar. Yet when the hopes of 1.5 billion overweight people depend upon an equally wrong, but vastly more serious, untruth, we continue to lie.

We know that any answer to the obesity epidemic must explain what has *changed* since circa 1980. The answer, therefore, can *not* be found in something we have been eating for over one hundred thousand years (real food – especially fat). The answer can *not* be found in anything we have been eating *less* of during the past thirty years (real food – especially fat). The answer *can* be found in anything we have *not* been eating for over one hundred thousand years (processed food – especially carbohydrate). The answer *can* be found in anything we have been eating *more* of during the past thirty years (processed food – especially carbohydrate).

The answer similarly can *not* be found in the other half of the energy in equals energy out oversimplification. Sedentary behaviour did not cause the obesity epidemic. Exercise will not cure it. The conclusion of the one study that tried to quantify the contribution played by energy intake vs. energy expenditure (Swinburn) was that Americans had been expending more energy during the period in which the average person gained 20 pounds.¹⁹ The Department of Health document *At least five a week* admits that the evidence for the benefits of exercise for preventing or treating obesity is not in abundance and not strong.²⁰

We opened with Colleen Rand's brilliant study of how much people would rather be something else than obese. The precise numbers were that 100% of those researched would rather be deaf, 89% would rather be blind and 91% would rather have a leg amputated – than be obese. Proposed solutions are that we surgically impair the stomachs, of our fellow humans. The suggestion that we might return to eating the way that we did, before we needed to invent such drastic procedures, is instead seen as radical.

The decision made by humans to move away from the diet that we have evolved to eat has led to two thirds of the 'evolved' world being overweight and a number wishing that they were literally anything else, rather than obese.

As Barry Groves observed: "Man is the only chronically sick animal on the planet."²¹

That's because man is the only species clever enough to make his own food and the only one stupid enough to eat it.

How many more obese humans do we plan to produce before we stop feeding them man-made food? Will the man-made obese ever forgive us for what we have already done? Will we ever forgive ourselves if we make any more? Is it really so preposterous to suggest that we simply return to eating the real food that our planet provides for us? The real food that we used to eat, before we got so fat we'd rather be blind.

The Specific Queries

2) *The measurement, evaluation and effectiveness of the Welsh Government's programmes and schemes aimed at reducing the level of obesity in children in Wales.*

It follows from the explanation of the obesity epidemic above that no government programme will work in its current form because the current government dietary advice is wrong.

At the 2011 Brighton Science Festival, Professor Klim McPherson was asked what would be the straw that broke the back of the NHS. He replied without hesitation "type 2 diabetes." The only macronutrient that diabetics, by definition, cannot handle is carbohydrate and yet we tell diabetics, along with non-diabetics, to base their meals on carbohydrates. Our advice is not merely wrong, it is bordering on criminal.²²

Researchers are starting to reassess the original (1970) allegations made against fat (or rather carbohydrates, as explained by the ice cream/cake misclassification). In March 2010 an article was published in the *American Journal of Clinical Nutrition*. The article was called "Meta-analysis of prospective cohort studies evaluating the association of saturated fat with cardiovascular diseases."²³

The objective of the study was to summarise the evidence related to the *association* of dietary saturated fat with risk of coronary heart disease (CHD), stroke, and cardiovascular disease (CVD) in prospective

epidemiologic studies. This article reviewed twenty-one studies covering 347,747 people with the results: “During 5-23 y of follow-up of 347,747 subjects, 11,006 developed CHD or stroke. Intake of saturated fat was not associated with an increased risk of CHD, stroke, or CVD. Consideration of age, sex, and study quality did not change the results”. The overall conclusion was “A meta-analysis of prospective epidemiologic studies showed that there is no significant evidence for concluding that dietary saturated fat is associated with an increased risk of CHD or CVD. More data are needed to elucidate whether CVD risks are likely to be influenced by the specific nutrients used to replace saturated fat.” The specific nutrients used to replace saturated fat have, of course, been carbohydrates.

Current government dietary advice for children

The UK NHS advice is split into two categories: for 0-5 year olds and 6-15 year olds. The 0-5 year advice is further split into three: breastfeeding; first foods and solids.²⁴

0-5 year olds – Breastfeeding

Breastfeeding is noted as “the healthiest way to feed your baby.” I agree.” Exclusive breastfeeding (giving your baby breast milk only) is recommended for around the first six months (26 weeks) of your baby's life. After that, giving your baby breast milk alongside other food will help them continue to grow and develop.” I agree with this also. However, I disagree as soon as I see the first foods to be introduced: “Your baby's first solid foods should be simple foods that they can easily digest, such as vegetables, fruit or rice.” Vegetables, fruit and rice are carbohydrates, carbohydrates and carbohydrates. This is not surprising when one knows the rosy view that public health advisors hold about carbohydrates, but this is precisely what needs to be challenged.

There is much agreement that the single best thing that mothers can do for the health of their child is to breastfeed. It is what evolution intended to happen. Psychologically it establishes a unique bond between mother and child. Nutritionally, it cannot be beaten – it contains all the essential fats, complete protein, vitamins and minerals that a baby needs in its first few months in this world. Breast milk is the complete food that the baby is designed to consume – for as long as the mother is able to feed the infant and for as long as the infant wishes to be fed. Breast milk carries natural protection against infection – maternal immunity is passed on to the child.

It is disturbing, therefore, that the British Dietetic Association, the union representing dieticians, has corporate partnerships with Danone and Abbott Nutrition – manufacturers of infant formula. As with the cigarette companies, the food companies have great incentive to reach consumers as young as possible.

Dr Robert Lustig analyses the composition of formula milk in his video lecture *Sugar: The Bitter Truth*.²⁵ Lustig used a can of Similac Isomil as an example (an Abbott Nutrition product). The feeding guidelines on the Similac web site range from 1-2 weeks to 9-12 months, so this is clearly a product designed for babies. The can of baby formula, of the part that is not water, contained 43% corn syrup solids and 10.3% sucrose. “It's a baby milkshake,” said a horrified Lustig. I analysed a product for myself. I chose Similac Isomil Advance, Soy Formula and the composition of this was 50% corn syrup, 14.2% soy protein isolate, 10.4% high oleic safflower oil, 9.7% sucrose, 8.2% soy oil and 7.5% coconut oil.²⁶ If a baby is unfortunate enough *not* to be breastfed, the infant can be started on a diet of 60% sugar from the first moment something is put in its mouth.

First Foods/Solid Foods

The NHS advice is that a baby's diet should consist of a variety of the following types of food: fruit and vegetables; bread, rice, pasta, potatoes and other starchy foods; meat, fish, eggs, beans and other non-dairy sources of protein and milk and dairy products.

The ‘eatwell plate’²⁷ (which is in inverted commas because it is anything but) has five food groups and the above advice is listing four of them. The junk segment (it is not a food group) is the one that has been excluded. Rightly so – it should be excluded by infants, children and adults if they care about their weight and/or health.

Meat, fish, eggs, dairy products and vegetables should be introduced into a toddler's diet – these are the most nutritious foods in terms of macro and micro nutrients. Bread, rice, pasta, potatoes and other starchy foods should *not* be given such prominence, and beans, pulses and fruit should be accompanied by a word of caution. Beans and pulses are difficult enough for adults to digest – they are not good for babies. Similarly,

fruit is too high in fibre and sugar to be healthy for babies in anything other than small quantities. A cherry tomato here, a strawberry there and not much more than this.

The food manufacturers are actively targeting our children at this tender age. They will try to get consumers as young as possible. Heinz is one of the best known brands of baby food in the UK. Their web site lists 61 product options for 4-6 month olds and provides nutritional information for these. The first four products on the list were breakfast options: three cereals and a yoghurt, ranging from 22-27% sugar content. Ingredients included maltodextrin, sugar and galacto-oligosaccharides. The latter is found naturally in breast milk, the first two clearly are not. Heinz Farley's Rusks are described as "a great way to gradually introduce your baby to solid foods". With the top two ingredients being wheat flour and sugar, we are indeed introducing baby early on to the two main ingredients it will consume for the rest of its eatbadly plate life. The sugar content in Farley's Rusks is 29%, the same as in McVitie's milk chocolate digestive biscuits and more than in UK biscuit favourites such as Hobnobs (23.8%) and McVitie's plain digestive biscuits (16.6%). Heinz fed babies can also enjoy delights such as banana and chocolate dessert: "a taste sensation", "delicious tasty strawberry cheesecake" and even "scrumptious" mild sweet chilli with chicken sauce – all with added sugar. I've got my own view on the cause of obesity in six month old toddlers and it has nothing to do with (saturated) fat.

The NHS advises the following from about nine months onwards: three to four servings a day of starchy food, such as potato, bread and rice; three to four servings a day of fruit and vegetables; two servings a day of meat, fish, eggs, dhal or other pulses (beans and lentils).

The NHS, therefore, is advising that nine month old children should have six to ten servings of carbohydrates a day (if beans and pulses are chosen instead of meat, fish and eggs, this will provide a further two portions of carbohydrates). This gets the child in the 'eatwell' plate way of life before they are one year old. However, this is the way of life that has caused epidemics of obesity and ill health.

If we want our children to grow up slim and healthy, we cannot have them basing their meals on starchy foods before they reach the age of one and for the rest of their life. Starchy foods are fattening, as Dr Tanner stated²⁸, and they are far less nutritious than animal foods – meat, fish, eggs and dairy products. Many starchy foods (sugar and flour) have little or no nutrition and are effectively pointless additions to a child's diet.

6-15 year olds

The NHS advice for 6-15 year olds is the 'eatwell' plate and indeed this is the core dietary advice from barely one year old for the rest of human life.²⁹ We therefore need to take a closer look at this 'role model' of healthy eating...

The 'eatwell' plate

There is one piece of advice that is common to UK public health advice and it can be found on the walls of hospitals, surgeries, clinics and even schools across the UK. The 'eatwell' plate was launched at a press release on Sunday 16 September 2007.³⁰ It is described in the British Nutrition Foundation video on YouTube as the "healthy eating model for the UK" – suitable for young or old, vegetarian or not and for any ethnic group.

It replaced *The Balance of Good Health*, which was launched by the UK Department of Health in 1994 and was also a picture of a segmented plate. In April 2000, responsibility for the Balance of Good Health (BOGH) diagram and concept passed to the newly formed Food Standards Agency. The FSA web site details the differences between the two plates. The BOGH title was seen as "unfriendly" and "lacking in emotion"³¹ and so the title and some colours on the plate rim changed. Food groups were renamed. For example "bread, other cereals and potatoes" became "bread, rice, potatoes, pasta (and other starchy foods)". May I suggest that a marketing company made a lot of money making the plate more "friendly" and "emotional", but, to all intents and purposes, what we know as the 'eatwell' plate has been around since 1994.

On 10 August 2009 I wrote to the Food Standard Agency and asked where the eight tips for eating well came from and I asked where the proportions for the 'eatwell' plate came from and what the rationale was for the proportions. The response was that the calculation of segment size was determined as follows:

- The calculations are based on the model average diet which was developed by the Ministry of Agriculture, Fisheries and Food (MAFF) for COMA (The Committee on Medical Aspects of Health).
- The weight of food in each group, with the exception of fluids, was calculated.

- The weights of fluids (e.g. milk and fruit juice) were halved before being added to the rest of the foods in milk and dairy and fruits and vegetables respectively. “The reason for doing this is that these fluids contain a high proportion of water and are used in large quantities in the diet.”
- The weight of all foods was then totalled. Portion size data was obtained from MAFF (from the national household food survey) and was converted into amounts to be consumed on a weekly basis.
- As a percentage of the total of this, the five food groups were comprised as follows:

Starchy foods (bread, potatoes, pasta, cereals etc)	33%
Fruit and vegetables	33%
Milk and Dairy products	15%
Non dairy protein (meat, fish, eggs, beans etc)	12%
Foods high in fat and sugar	8%

(101% due to rounding)

Despite the fact that the plate seems to be about a visual estimate of proportions, weight is clearly the important factor in the detailed explanation. So, I did an interesting calculation. I started with 100 grams of starchy foods and then calculated the weight of the other categories, to maintain the proposed proportions. The weight of fruit and vegetables would also be 100 grams; milk and dairy would be 45 grams; there would be 36 grams of non dairy protein and 24 grams of foods high in fat and sugar. I estimated the calorie averages for 100 grams of each of these food groups as 333, 42, 183, 188 and 595 respectively.ⁱ This would give the estimated calorie values (for each of these weights) of 333, 42, 83, 68 and 144 respectively. If these are then scaled up in proportion for a 2,000 calorie a day diet, the five groups end up with 993, 125, 248, 204 and 430 calories respectively. The numbers will vary for each person’s interpretation of the plate, but you can see how one third of intake in the form of starchy foods can represent half of calorie intake and another third from fruit and vegetables just 6% of energy. The supposedly smallest segment, being so energy dense, can form a perhaps unanticipated 21% of calorie intake.

I did the above calculation for interest and to show the law of unintended consequences, not to legitimise the ‘eatwell’ plate in any way. It is an appalling proposal for healthy eating advice. Please do look at the diagram carefully and see for yourself the products we are being encouraged to eat.³² The “Starchy foods” segment features a box of cornflakes – not Kellogg’s branded on the ‘eatwell’ plate, but Kellogg’s branded on my version of the *Balance of Good Health* plate from the National Obesity Forum conference, which I attended in October 2004. Even without branding, the starchy foods segment on the ‘eatwell’ plate also features Weetabix cereal, white pasta, white rice, white bagels, white bread and other refined carbohydrates.

The fruit and vegetable segment makes no distinction between fruit (essentially sugar) and vegetables. The poster also features dried fruit, fruit juice, tins of vegetables (often containing sucrose) and other fruit and vegetables, which are not in the form that nature delivers them.

The non dairy protein can all be consumed in carbohydrate form – and presumably is by vegans and mostly will be by vegetarians. This section has baked beans prominently shown at the front (not branded) and tins of chick peas and kidney beans are also in the segment. There is no caution to look out for the sugar added into many such tinned products.

The dairy section also contains carbohydrate. As a rule of thumb, dairy contains approximately 5% carbohydrate levels. The (likely) sugared yoghurts in this segment will be even higher in carbohydrate levels and sugar content.

The final segment is astonishing – 8% of our weight intake for foods high in fat and sugar, which becomes over 20% of our calorie intake. The products featured include a can of cola (yes really), sponge cake, Battenberg cake, sweets, biscuits, pies, pastries, chocolate and crisps. Does Wales really want a can of cola and these junk products on the walls of surgeries and schools nationwide, as an advert for healthy eating?

ⁱ I keep a database of common foods, derived from the USDA nutrition database. I averaged all my sample foods for each of the five categories: starchy foods averaged 333 calories; fruit and vegetables 42; milk and dairy 183; meat, fish, eggs, beans 188 and foods high in fat and sugar 595 calories (all per 100 grams).

Each of the five segments therefore features carbohydrate, to a greater or lesser extent. Every food consumed, as recommended by this “model of healthy eating” can have an impact on insulin. Add to this the often heard advice “Graze – eat little and often” and you can see how our government advice is keeping UK citizens in a fat storing, not a fat burning, environment all day long. It is no wonder that insulin sensitivity, insulin resistance and type 2 diabetes are becoming increasingly commonplace, as the human pancreas has never before had to cope with this quantity or frequency of carbohydrate, let alone this poor quality of carbohydrate.

The two fundamental errors with the 'eatwell' plate advice (base your meals on carbohydrates/starchy food) are as follows:

1) We eat because we need essential fats, complete protein, vitamins and minerals. The best providers of all these macro and micro nutrients are meat, fish, eggs, dairy products, nuts, seeds and non-starchy vegetables. Meat and fish contain no carbohydrate, eggs barely a trace, dairy products approximately 5% carbohydrate, nuts and seeds closer to 15% and vegetables are mainly carbohydrate – but low in carbohydrate overall when compared to grains and fruits.

Advising children and adults to base their meals on starchy foods is tantamount to saying "base your meals on nutritionally inferior foods."³³ Humans want to eat more as a result of this advice a) because carbohydrates lack satiety and we can over consume them and b) because carbohydrates do not satisfy our nutritional requirements and the body continues to seek missing nutrients as a result.

2) There is a complete misunderstanding among dieticians and dietary advisors as to the macronutrients needed by humans. The Harris Benedict equation tells us that an average 15 year old girl (51kg, 5'2"), who is moderately active, needs approximately 2,000 calories a day (2,068 is the precise estimation). 'Bronwyn' thus needs 1,334 calories for basal metabolic repair and 734 calories for energy above these growth and repair needs. (Please note that the formula gives precise numbers, but these can only be estimations – this is not a precise science.) Fat and protein are the only macronutrients able to be used for growth and repair. The calories needed for energy can be provided by carbohydrate or they can come from fat (fat is the most versatile macronutrient). Bronwyn needs 65% of her intake in the form of fat and protein and can have 100% from these two macronutrients. Instead she is advised to consume at least 55% of her food in the form of carbohydrate. She does not need this. She needs to exercise even more to burn off the excess or she will store the carbohydrate first as glycogen and then fat. She is also deficient in fat/protein – she gets fat and sick at the same time.³⁴

Advising children and adults to base their meals on starchy foods is tantamount to saying – prioritise the macronutrient that you actually don't need, over the two that you do. This will make you deficient in the fat and protein needed for basal metabolic requirements and you will store the carbohydrate that you don't need as body fat.

Our demonisation of fat has manifested itself in a return of rickets in children.³⁵ An entirely avoidable consequence of bad dietary advice.

The 'eatwell' plate and the 'food' companies

The 'eatwell' plate has been adopted by the British Dietetic Association and concomitantly into local authorities and health boards UK wide. It has been adopted by Diabetes UK³⁶, the British Heart Foundation, Cancer Research UK and the plate is even on netmums.³⁷ That's our gateway to health for the children of the future, and the gatekeepers for our major modern illnesses, signed up to promoting the consumption of unprecedented levels of (processed) carbohydrate, in complete contrast to how we have eaten for tens of thousands of years.

Even more worrying, the 'eatwell' plate is featured on web sites for numerous food and drink companies. I stopped looking after the first six companies that came to mind all endorsed the plate: Sainsbury's; Kellogg's; PepsiCo; Coca-Cola; Nestle and Premier Foods. The latter is “the UK's largest food producer” with brands including (best known for): Cadbury (confectionery); Mr Kipling (cakes); Rank Hovis (bread); Hartley's (jam); McDougall's (flour); Fray Bentos (pies and processed meat); Gateaux (cakes); Birds (custard); Batchelors (soups); Homepride (flour) and many more. When the food and drink industry are so actively embracing public health advice isn't it time to wonder just how healthy that advice can be.

Sedentary behaviour did not cause this obesity epidemic; exercise will not cure it

Those who think that sedentary behaviour is at the heart of the obesity epidemic think that, if only people did more, they would not be overweight. Childhood obesity particularly, has a worrying reliance placed on the idea that, if only we could get our younger people away from the screen and active in some way, all will be fine.

One of the best television programmes I have come across, as an obesity researcher, blew this theory apart with a simple and highly memorable experiment. The programme was called *30 Minutes* and it was about childhood obesity.³⁸ The presenter, Nick Cohen, took a boys football team from London and split them into three groups. One third of the team were given an apple; another third a bag of crisps and the final group a confectionery bar. The teenagers were then asked to run around an athletics track continuously until they had burned off what they had eaten. They were invited to stop when they thought they had used up their energy intake and they did so after a couple of laps. They were asked to carry on until they had in fact used the energy equivalent of what they had consumed. The apple group needed to run for 13 minutes, the crisp group needed to run for 42 minutes and the confectionery group needed to run for one hour and five minutes to burn off their item. (The confectionery group was stopped long before the hour, as they were struggling to continue). Cohen explained that, if a child ate a bag of crisps, a confectionery bar, a burger and chips and had a fizzy drink, they would need to run continuously for five hours to burn that off. There are simply not enough hours in the day to compensate for the amount of junk that fake food companies desire that children consume.

The Department of Endocrinology and Metabolism at the Peninsula Medical School in Plymouth, UK, has made some very interesting findings as part of the “EarlyBird Diabetes Study.”³⁹ The study identified a random sample of the 1995-96 birth cohort from Plymouth. 54 primary schools consented to take part. 307 children (137 girls, 170 boys, mean age 4.9), who started school between January 2000 and January 2001 were chosen for the study. The study was designed to try to understand why some children develop diabetes and others do not. However, it has also provided many invaluable insights into obesity and physical activity along the way.

The Peninsula research team have found consistent evidence for the concept of a ‘set’ activity level. The first study was presented in the *British Medical Journal* (2003).⁴⁰ The participants were 215 children (120 boys and 95 girls, aged 7-10.5, mean 9 years) from three schools with different sporting facilities and opportunity for physical education (PE) in the curriculum. School 1, a private school with some boarding pupils, had extensive facilities and 9 hours a week of physical education in the curriculum. School 2, a village school, offered 2.2 hours of timetabled physical education a week. School 3, an inner city school with limited sporting provision, offered 1.8 hours of physical education a week. The team said of the results: “Surprisingly, total physical activity between schools was similar because children in Schools 2 and 3 did correspondingly more activity out of school than children at School 1. Among the boys, total activity was higher in School 2 than in School 1 and School 3 with mean (standard deviation) units of activity a week of 39.1 (6.8), 34.7 (7.7), and 33.8 (7.8).”

The conclusion was: “The total amount of physical activity done by primary school children does not depend on how much physical education is timetabled at school because children compensate out of school.”

The study was extended over a longer period of time and the researchers presented updated findings at the May 2009 European Congress on Obesity in Amsterdam. The study group remained of similar size, 206 children, ages 7 to 11, from the same three schools in and around Plymouth. Over the longer study, the private school children had an average of 9.2 hours per week of scheduled activity, children at the two other schools got 2.4 hours and 1.7 hours of PE per week, respectively. Again, the study found that, no matter how much scheduled activity the children were given, they were similarly active overall. The children who had been doing organised PE were doing little outside school. The ones who had less scheduled exercise were more likely to head out on their bike, or play football, after school.

The ‘food’ industry use the exercise argument as their main counter to their role in obesity. On 26 May 2010 a press release was issued: “Lack of exercise key to increased BMI in children – dietary sugars are not the driving factor behind rising BMI levels in children in Great Britain.” The press release was made by the Ware Anthony Rust PR Agency on behalf of The Sugar Bureau.

The announcement that Cadbury were going to sponsor the 2012 Olympics was criticised by the National Obesity Forum. Board member, Tam Fry, was quoted as saying “I would be very concerned that it is encouraging children to eat chocolate because it is all part of the promotion of unhealthy food to children.”

Cadbury's response was the one that we commonly hear: "Treats can be consumed responsibly – the key is how to balance consumption of treats and physical activity."⁴¹ I.e. processed food is part of a balanced healthy diet. Cadbury have the 'eatwell' plate on their side in this respect.

The key objections to the delusion that leisure and sport related programmes/planning policy etc can solve the obesity epidemic can be summarised as follows:

- 1) Sedentary behaviour did not cause this obesity epidemic.⁴² De facto exercise will not cure it. Changing our dietary advice to favour carbohydrates over nutritionally superior fat/proteins caused this obesity epidemic. Changing our advice back will thus give us a chance of curing the epidemic.
- 2) We cannot exercise away a bad diet. There are insufficient hours in the day for children to exercise away the amount of carbohydrate that the government is telling them to consume and/or the amount of junk that the 'food' industry would like them to consume. Sadly, the junk segment on the eatbadly plate makes government advice and 'food' industry goals one and the same thing.
- 3) The 'food' industry loves any government campaign which implies that activity shall be the solution to the obesity epidemic. "Eat anything and be active" is the primary message of the 'food' industry. Governments should be fighting the fake food industry, not promoting their defence for them. The latest coca-cola advert is the most disgraceful I have ever seen.⁴³ It is literally saying to people "Get off your lazy backsides and then you can consume as much of our fizzy junk as our growth projections require." Coca-Cola states that it intends to double the size of its business by 2020⁴⁴ – we can't exercise away current fizzy drink consumption, let alone a doubling of this.

Natural activity (playing, climbing trees, dancing, exploring, outdoor games etc) are wonderful things for children to do. They encourage socialisation, creativity, teamwork and give a great sense of well being. There are a myriad of reasons for encouraging activity in young people. However, solving the obesity epidemic is *not* one of them. Please do *not* play into the hands of the fake food industry by promoting their 'be active and then you can eat our junk' message.

Change4Life

The Department of Health, Change4Life programme, managed by the UK National Health Service is ignorant and conflicted. Wales should disassociate itself from this UK NHS initiative immediately.

The ignorance exists primarily in the messages given about fat. Cartoon adverts are literally a joke, although not intended to be. The adverts claim that dietary fat clogs up arteries. It can only do this if intravenously injected! I have yet to find a biochemist who can explain how dietary fat can metamorphosise into Low Density Lipoproteins (LDL is not cholesterol, let alone 'bad'), let alone that it does. If the Welsh Government continues to air these Change4Life adverts, they need to provide evidence as to how dietary fat can, let alone does, clog arteries.

Change4life is right to target sugar, but wrong to target salt⁴⁵ and real fat as found in real food (meat, fish, eggs, dairy, nuts, seeds). Any government programme needs to target processed food. This is the enemy – not real fat as found in real food. Real food has sustained human life since we evolved from *Australopithecus Lucy* an estimated 3,500,000 years ago.

The conflict runs deep. The Change4Life programme has the logos of 75 partner organisations on their web site.⁴⁶ Kellogg's, PepsiCo and Unilever are the familiar names that stand out. The £75 million programme was criticised for the involvement of Business4Life partners from the outset. Marketing Week⁴⁷ noted that Richard Watts, co-ordinator of the Children's Food Campaign at lobby group Sustain, was concerned that allowing companies to use the Change4Life logo gave companies "tacit support". Unilever used the Change4Life logo along the Flora London Marathon route. Kellogg's have been sponsors of the Amateur Swimming Association's (ASA) awards scheme, with the "Kellogg's Swimtastic Awards" as a key annual event. In 2009, these awards featured a new logo: Swim4Life. Bruce Learner, corporate social responsibility manager at Kellogg's, said: "Our partnership with the ASA began in 1996, since then more than 15 million swimming awards have been presented to youngsters across the country."⁴⁸ The ASA annual report (2004)⁴⁹ said, under the heading "Another Grrreat Year", "It's been another financially successful year for the Kellogg's Frosties ASA Awards Scheme..." Under the heading "Swimtastic", the report continued: "The Annual Awards Gala Dinner, now known as Swimtastic, was held... Tony the Tiger was of course around to lend a helping paw of support to everyone."

Kellogg's were regularly featured in the British press during February, March and April 2010 following their campaign "Ever thought of Coco Pops after school?" Christine Haigh of the Children's Food Campaign noted that the cereal maker's advertising did not align with its role as a partner for Change4Life. "It's outrageous that Kellogg's, which is a partner of Change4Life, is encouraging children to eat more of their sugary products," she said. *The Guardian* reported in April that 26 people and organisations complained to the Advertising Standards Authority that the advert was irresponsible because it targeted schoolchildren, and encouraged them to eat a snack that was particularly high in sugar.⁵⁰ The ASA rejected the complaints, accepting the Kellogg's argument that although Coco Pops are approximately 35% sugar, there is no current UK or EU definition of "high" as far as sugar content is concerned.

I wrote to both Kellogg's and the Department of Health and received an email back from the Department of Health on 11 March 2010 saying "Whilst this work cited for Coco Pops is not activity to support Change4Life, we understand the concerns raised and are seeking a meeting with Kellogg to discuss the matter with them." Kellogg's sent me back a comprehensive defence of sugar,⁵¹ essentially saying that Coco Pops were no worse than other products laden with sugar. Quite so – no worse, no better.

MEND

Mind, Exercise, Nutrition, Do it! is little better. Slightly less conflicted (although Danone, Britvic, Johnson & Johnson and Sainsbury's are inappropriate partners), but with the same government carbohydrate based nutritional messages epitomised by the eatbadly plate. This will therefore merely perpetuate the problem caused by the current dietary advice, rather than alleviate it.

The food companies and our children

I referred to the television programme *30 Minutes*, presented by Nick Cohen. Cohen opened with the stark financial reality "Far more money is spent researching how to make children eat than how to make them read." This was the voice over as nine year old Jake was walking around a grocery store wearing special glasses to show market researchers, for whom he was working, what was attracting his attention. Cohen noted that three and a half million adverts were on children's television in the UK in 2003. This will have increased dramatically with the expansion of digital TV and vastly more channels since then.

Cohen noted "According to research we commissioned from Nielsen, 1,150 junk food ads were shown across children's television every day. McDonald's spent £32 million on TV advertising; nearly £13 million was spent by Coca-Cola and nearly £7 million by Pringles." All of this data was for 2003-04 for just the UK. Since 1991 no adverts, which set out to attract the attention of children under 12 years old, have been allowed on Swedish commercial TV stations. Tessa Jowell, the secretary of state for culture, media and sport at the time of the programme declared herself "sceptical" about such an intervention. Cohen said "the government pretends that children are savvy consumers who can't be manipulated; why they believe in Father Christmas, Ms Jowell never explains."

The programme was aired at the time that videos and other recording devices were becoming increasingly commonplace, such that consumers could skip adverts more easily. Needing to find alternative ways to reach young consumers, the programme noted that just under half of the schools in the UK had a permanent 'bill board' in the canteen – a Coca-Cola or PepsiCo vending machine. The government requirement for school capital projects to be privately funded had also led to branding in everything from exercise books to playing fields. "Eat football, sleep football, drink Coca-Cola" was the banner adorning the playing field at Bexley Heath School. It was accompanied by a large Kellogg's Frosties banner, behind the goal posts. In December 2008, the lobby group Sustain and the Children's Food Campaign published an excellent exposé of educational material produced by the 'food' industry entitled "Through the Back Door."⁵²

The particular concerns with childhood obesity

There is a particular aspect of strategy, which needs to be prioritised, and that is prevention. The recent emphasis on the management of childhood obesity is absolutely right in principle, just tragically misguided in execution. Childhood obesity is critical to avoid *per se*, but also for two specific reasons:

1) We know that the risk of overweight children becoming overweight adults is significant: "80% of children who are obese at age 10–14 will become obese adults, particularly if one of their parents is also obese."⁵³ "Adjusting for parental obesity, the odds ratio of an obese 1-2-year-old being obese as an adult is 1:3, i.e. 30% more likely than a non-obese child. While for a child obese at age 15-17 years, the odds ratio is 17 fold. Among very obese children aged 10-14, the unadjusted odds ratio is 44 fold. Clearly, the increasing

prevalence of obesity in childhood⁵⁴ is very likely to translate into greatly increased levels of obesity among adults, rendering them more susceptible to chronic, life-threatening illness.”⁵⁵

2) Although it is difficult to increase the number of fat cells in adults (super morbid obesity aside) “a significant increase in the number of fat cells has been shown to occur at key stages in childhood development.”⁵⁶ We know that fat cells can *not* be reduced in number, only in size, so, if a child does increase their number of fat cells before adulthood, this fat cell capacity is with them for life. These fat cells will continually demand to be fed, giving the individual a lifelong increased drive to eat and a lifelong propensity for obesity.

Ensuring that our children reach the age of 21 with a similar BMI should be a fundamental goal of government, dietary advisors, parents and young people alike. To this end, the ‘education’ that is being given to children and parents is catastrophic. Here are three examples by way of illustration:

Our current diet advice has created completely the wrong view of calories. Instead of calories being seen as energy for the human body, they have become things to be avoided – even feared. The British TV presenter, Fearn Cotton, made an excellent programme *The truth about online anorexia*, which aired in April 2009.⁵⁷ Cotton visited a school in west London, UK and talked to a class of 10 year olds about body image and calories. Kira said the following: “I don’t like my body” and “I think I weigh too much.” When asked about calories she knew the calorie content of a small Kit Kat and said “I don’t really count them (calories), but they are bad ‘cos you have to try and spend all your time exercising trying to burn them off.” That’s what a ten year old thinks about calories.

Panorama, BBC 1, 13 April 2010 was called *Spoilt Rotten* and was about a number of children presenting a number of preventable conditions to staff at Liverpool’s Alder Hay Hospital. Leon was perhaps the most interesting child featured. Aged five he weighed 145 pounds (65.85 kilograms) – the weight of an average 17 year old. Leon’s mother, Sharon, is convinced that her son has a genetic disorder. She follows him from school with a wheelchair, because, at some point during the 700 yard journey, he ‘can’t’ walk any further and needs to be pushed home. His doctor, Dr. Mohammed Didi, was trying to encourage the family to give Leon as much exercise as possible. Dr. Didi was unaware of the wheelchair until the programme production team informed him about it.

Sharon said “I just wish someone would put a camera in the corner of the house and watch my son, then come back and tell me I’m doing something wrong, because I guarantee they won’t find nothing (sic)”. So the production team did exactly that. They filmed Leon eating a banana in the final part of the journey, as he was being pushed in the wheelchair to home. When he arrived home, he thought he had left a piece of birthday cake from a party at school and he became quite hysterical. (If anyone ever doubts whether or not sugar is addictive, they should have watched this programme). His grandmother ‘fortunately’ found the cake and Leon ate it and was transformed immediately into a ‘normal’ child once more. The cake was two (slim) slices of chocolate log. Within minutes of finishing this, Leon was offered another snack. He was actually preoccupied at the time and mum had to interrupt him to clarify did he want strawberries or banana on his Weetabix. “Both”, was the reply. The camera team stayed at the house for just two hours – enough time to see Leon have his actual tea of fish, mashed potato and mushy peas. The portion size would have been ample for my six foot tall husband. Before the production crew left, Leon was filmed sat on the sofa eating an apple.

When the presenter challenged Sharon about the amount of food she had given Leon, her defence could only be described as aggressive. “Why is that a lot of food?” she retorted “when the Weetabix is fibre with fruit on and it was fish, mash potatoes and veg?” “Was it chips and pizza?” The presenter could barely say the word “no” before Sharon closed the conversation with “there you go then.” Mum flatly refused to accept any responsibility for her son’s obesity. In her defence, she had followed the ‘eatwell’ plate well.

I attended a meeting at the Aneurin Bevan Health Board in Pontypool, south Wales in April 2010. Arriving early, I looked at some drawings of ‘healthy’ lunch boxes, done by children from a local school, Llanyrafon Primary. The pictures featured sandwiches, spaghetti, chocolate, pizza, pasta and fruit juice. It is difficult to draw pasta, so one lunch box had a label saying “pasta – this is because it has carbohydrate in it” and another said “yogat (sic) has carbohydrates in it – that’s why it’s in there.” I estimated the children’s ages to be approximately seven. The teacher likely put the word carbohydrate on the board, for this to be spelled correctly and yoghurt incorrectly. It would appear that our primary school children know lots about carbohydrates, but not the most nutritious macronutrients: protein and fat. The ‘eatwell’ plate proponents

would no doubt be thrilled to see such young children thinking that carbohydrates are the most important food to consume.

My heart literally sank thinking about the scale of the task we have, if we are to stop 90% of these children being overweight or obese by 2050. If they were finishing primary school convinced that eating real food, as delivered by nature, was the most important thing that they could do for their health and weight, we would have done a good job. Instead, our under tens think that sandwiches, spaghetti, chocolate, pizza, pasta and fruit juice should form the basis of a healthy school lunch and dietitians would most likely agree with them.

Unsurprisingly, we are failing in our targets. In October 2007, the Public Sector Agreement (PSA12) in the UK set “a long-term national ambition by 2020 to reduce the proportion of overweight and obese children to 2000 levels.”⁵⁸ This was trying to build on the 1996 target for childhood obesity to “halt the year-on-year rise in obesity among children aged under 11 by 2010, in the context of a broader strategy to tackle obesity in the population as a whole.”⁵⁹ “There is, as yet, almost no evidence that these policies have changed the trajectory of obesity growth.”⁶⁰

As a final thought on children – if you slap your child, be prepared for any person who may witness this to verbally abuse you, or even to call the police. Give your child glucose syrup, sugar, gelatine (derived from the collagen inside animal skin and bones), dextrose, citric acid, flavourings, fruit and plant concentrates, colours (including carmine, which is made from crushed insects – usually red beetles), glazing agents (including beeswax), invert sugar syrup and fruit extract and no one will bat an eyelid. That’s the ingredients list for (sing along) “Kids and Grown-ups love it so, the happy world of Haribo”. And – the slap is supposed to be a punishment and the sweets are supposed to be a treat. What could such a concoction do to the body of a child? I believe that loving a child (indeed any human being) and giving them a cocktail of sugars bonded together with animal innards are mutually exclusive acts.

3) The barriers to reducing the level of childhood obesity in Wales.

The main barrier to reducing the level of childhood obesity in Wales is government advisors. The main culprits among these are dieticians – doctors tend to be less familiar with the 'eatbadly' plate and consequently can cause less harm. Dieticians have a unique and destructive combination of arrogance, ignorance and closed mindedness. The trilogy is of severe detriment to progress. Our dietary advice needs to change – not to be dogmatically pushed harder. Resistance from dieticians to admit that our advice has been wrong and to change advice will be the single biggest challenge for Wales to overcome to reverse the obesity epidemic.

I hope that the wise words of Alexander Pope can be adopted: "A man should never be ashamed to own that he has been in the wrong, which is but saying in other words that he is wiser today than he was yesterday."⁶¹

4) *Whether any improvements are needed to current Welsh Government programmes and schemes and any additional actions that could be explored.*

Improvements are definitely needed and current programmes and schemes need to be scrapped. These are the three urgent steps that we need to take to reverse the obesity epidemic in Wales. These will address adult obesity in Wales, as well as childhood obesity.

1) Reverse current dietary advice.

Tear down the eatbadly plate from every school and medical centre in Wales. Stop telling people to base their meals on fattening (starchy foods). Go back to knowing that starchy foods make us fat and sugary stuff even more so. All dieticians and dietary advisors need to be re-educated and re-trained. With relationships with soft drinks manufacturers and sugary cereal companies, telling the public to favour fake over real food (cereal, not eggs; margarine, not butter; low calorie drinks, not milk), dieticians are a merchandising force for the fake food industry.

2) Deliver one clear government message – Eat Real Food!

Real food is: meat, eggs and dairy from grass living animals; fish; vegetables; fruits in season; nuts and seeds. Whole grains are debatable as a real food. They have been introduced into the food chain in the blink of an eye in terms of evolution. They may be consumable in moderation, but most definitely should *not* be the foundation for childhood or adult diets. As real food is promoted, so processed food should be demonised concomitantly.

I use the following as an analogy: “If we have been eating real food for 24 hours, agriculture gave us large scale access to carbohydrates four minutes ago and sugar consumption has increased twenty fold in the past five seconds. I wonder which food is more likely to be responsible for the obesity epidemic or any modern disease...”

3) Eliminate conflicts of interest.

England naively believes that the obesity epidemic can be solved by working with the 'food' industry. The 'food' industry is part of the problem – never will it be part of the solution. Wales is in a unique position in this respect, as we have no economic allegiance to the fake food industry. We need not fear for withdrawal of government funding or 'food' industry jobs lost in our discrete nation.

We do however need to eliminate conflict of which governments may not be currently aware. Change4Life has been shown to be one such example. The British Dietetic Association should be kept at arm's length, not given a monopoly on dietary advice, given their corporate relationships (past and/or current) with Danone, Abbott Nutrition, Birds Eye, Kellogg's and The Sugar Bureau and likely more (they are far more secretive about their 'food' industry relationships than their American or Australian counterparts – likely ashamed of them).

The British Nutrition Foundation (BNF) was founded in 1967 and its web site says that this organisation “...exists to deliver authoritative, evidence-based information on food and nutrition in the context of health and lifestyle. Accurate interpretation of nutrition science is at the heart of all we do.”

The BNF's “Sustaining members”⁶² are: British Sugar PLC; Cadbury; Coca-Cola; Danone Waters and Dairies UK Ltd; J Sainsbury PLC; Kellogg's; Kraft Foods UK Ltd; Nestle UK Ltd; PepsiCo; Premier Foods (RHM Technology Limited); Tate & Lyle Sugar; Unilever PLC; WM Morrisons Supermarkets PLC. Presumably sustaining members are members that keep the organisation going?

The BNF's “members”⁶³ are: 3663 (the UK's leading food service company); AgroFresh; AHDB Meat Services Ltd; Ajinomoto/ Nutrasweet Switzerland AG; Arla Foods UK PLC; ASDA Stores Ltd; Associated British Foods PLC; Bernard Matthews PLC; Coca-Cola; Dairy Crest Ltd; GlaxoSmithKline; H J Heinz Ltd; Home Grown Cereals Authority; Innocent Drinks; J Sainsbury PLC; Kellogg's; Kerry Foods; Lighter Life; Marks & Spencer PLC; Mars UK Ltd; McCain Foods Ltd; McDonald's Restaurants Ltd; McNeil Consumer Nutritionals (makers of Splenda and Benecol amongst other products); Müller Dairy; Nabim (the representative organisation for the UK flour milling industry); National Starch; Northern Foods PLC; PepsiCo UK Ltd; Pizza Express; Potato Council Ltd; Procter and Gamble Limited (Pringles); R Twinings & Co (tea producers); Slimming World; The Co-Operative Group Ltd; The Jordans and Ryvita Company Ltd; United Biscuits (UK) Limited; Wagamama (restaurants and take outs); Waitrose Ltd; Weetabix Ltd; WM Morrisons Supermarkets PLC and Yoplait Dairy Crest.

At the time of writing my book *The Obesity Epidemic: What caused it? How can we stop it?* the sponsors of the UK National Obesity Forum included: Abbott Pharmaceuticals (makers of the diet drug Reductil, withdrawn from Europe in January 2010); Canderel (sweetener); GlaxoSmithKline (Alli); Lighter Life; Roche (Xenical); Safeway and Slim Fast.⁶⁴

Similarly, at the time of research, the sponsors of the UK Association for the Study of Obesity included: The Cambridge Diet, Coca-Cola, GlaxoSmithKline, Kellogg's (again), Roche and Slim Fast and these are prominently featured and thanked in conference material and newsletters.

As a final measure, if Wales were to secure tax raising powers, I would recommend substantial and deterring taxes on processed foods and for revenues raised to be used to subsidise real foods.

Sugar should be the prime target for taxation – there is barely a processed food that does not contain sugar. Sugar taxation would merely be a return to previous public policy, albeit from centuries ago. Adam's Smith's *The Wealth of Nations* (1776) noted "Sugar, rum, and tobacco are commodities which are nowhere necessities of life, which are become objects of almost universal consumption, and which are therefore extremely proper subjects of taxation." Just under one hundred years later, the sugar tax was repealed. The tax needs to be reinstated.

I am not the first to call for a sugar tax to be reinstated. In April 2009, Kelly Brownell and Thomas Frieden⁶⁵ called for the imposition of taxes on sugared drinks arguing that "Sugar-sweetened beverages (soda sweetened with sugar, corn syrup, or other caloric sweeteners and other carbonated and uncarbonated drinks, such as sports and energy drinks) may be the single largest driver of the obesity epidemic". Writing in 2009, they noted that "in the past decade per capita intake of calories from sugar-sweetened beverages has increased by nearly 30%,"⁶⁶ beverages now account for 10 to 15% of the calories consumed by children and adolescents." Brownell and Frieden call for a penny-per-ounce excise tax, which would raise an estimated \$1.2 billion in New York State alone.

The objective of such taxation should primarily be to reduce consumption, but any revenue generated can have an added benefit of subsidising real food and/or the health services that are impacted by such consumption. We should go substantially further than Brownell and Frieden propose. Using sugar as an example, we need to double the price of any product containing non naturally occurring sugar (any added 'ose') or sweetener (sweeteners need to be included or 'food' manufacturers would try to replace sugar with sweeteners and these have been shown to have serious health consequences). This would immediately discourage food manufacturers from adding sugar, completely unnecessarily, to ham, cottage cheese, tins of chick peas, kidney beans and other healthy products. We should triple the price of any product where all sugars added together are the majority of the composition of the product. For any product (e.g. children's sweets) where the entire product is essentially sugars (with a bit of crushed animal innards, gelatine, for bonding), we should multiply the current price by four or five fold. The proceeds from taxes on sugar and sweeteners should subsidise real food for people who are currently least able to afford it. We cannot hope to solve an obesity epidemic when we can buy ten doughnuts *or* one cucumber for the same price.

Close

This is a unique opportunity for Wales. We have no fake food industry to upset; we have no conflicts of interest that we need to protect for the sake of jobs. We have the most wonderful indigenous food – Welsh lamb, butter, milk – we need to promote it, not demonise it. We are a bold and wonderful nation. We captain the Lions, we lead the way on broadband and banning smoking in public places.

The NHS vision, set out by David Sissling in 2011, aspires "Wales can be among the best." We can do even better than this. We can become the first country in the world to first halt and then reverse the trends on obesity. We can lead the world and return to eating what humans ate before we had an obesity epidemic, before we had 171 million diabetics world-wide – a number due to rise to 336 million by 2030, according to the World Health Organisation.⁶⁷ Four in ten people will get cancer, while PepsiCo is bigger than 68% of the countries of the world.⁶⁸ Government needs to take a stand against big business and put health top of the priority list. England is too conflicted to do this, but Wales can.

Wales can lead the world and be the first country to change direction and reverse the epidemics of obesity, diabetes, heart disease, cancer, Alzheimers (now being called type 3 diabetes) and every chronic illness. It will require us to go back to thinking what we thought about food just a few decades ago. (Granny was

right). It will require us to stop the army of 'food' industry backed dieticians pushing the eatbadly plate onto human guinea pigs. It will require great courage, but there is no alternative.

If we are going to ask Wales to step up to the plate – it needs to be the right plate.

One definition of madness is doing the same thing again and again and expecting a different result. Revolutionary change will *not* be achieved with the UK Change4Life campaign, for example, advising people to have a banana instead of a bag of crisps. Swapping one starch for another is going to make no difference to the obesity epidemic. Some of the proposals may appear extreme, but, if they do, how does “90% of today’s children being overweight or obese by 2050” sound?⁶⁹

Zoë Harcombe

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