WN *Update*

World Nutrition **Volume 6, Number 4, April 2015**

Journal of the World Public Health Nutrition Association
Published monthly at www.wphna.org/worldnutrition/


WN *Big Food Watch. Hot stuff*

Operation Phoenix

Access November 2014 Hypothesis Anne-Emanuelle Birn on Gates here
Access March 2015 PLoS Medicine Sugar industry and dental caries here
Access March 2015 Zheng Guogang on climate disruption in China here
Access March 2015 PHM comments on WHO childhood obesity report

Is nutrition as a profession and as practiced now a burned-out case? Some think so. And if so, can a phoenix rise out of the ashes, able to fly through the flames of the age we live in now, and thrive?

The Update team reports

The *Update* section in this *WN* includes stories on specific topics, which have a common theme – authoritative or influential assaults on the credibility of nutrition science as taught and practiced without radical revision since early last century. Many other *WN* contributions show that conventional nutrition is being persistently questioned, from outside and also inside the profession. The items that follow indicate confusion and even chaos within nutrient-based thinking, also known as nutritionism. But altogether the indictment is more serious. It includes charges of obscurity, ignorance, obsolescence, irrelevance, incompetence, complacency and venality. Is nutrition in its present state a burned-out case? And if so, can a firebird as shown above, the phoenix, rise from the ashes?

2009. 'Appalled and ashamed', 20 courageous physicians rip up their membership cards and resign from the American Academy of Family Physicians, protesting AAFP partnership with Coca-Cola

The Update team reports:

The week as this issue of *WN* went on-line was busy. We were challenged by fellow *WN* team member Mark Wahlqvist. He is a previous president of the International Union of Nutritional Sciences and an Officer of the Order of Australia, a high national honour. An authority on nutrition ecology, he is a professor in Australia, China and Taiwan. He says that *WN* must speak out with a stronger voice. He sent us a terrifying presentation on *climate disruption in China*, warning:

> We are confronted by Goliaths. But we have colluded with the 'nutrition capitalists' for too long, and to the peril of the planet and us all. Time is running out.

Telling it like it is

A day later we received a scorching response from the *People's Health Movement* to the first report of the WHO *Commission on Ending Childhood Obesity*. 'The word "poverty" does not appear in the whole document' say the comments, and

> The presence of multiple references to working constructively with the private sector in WHO and UN resolutions is not evidence of its effectiveness. This simply reflects advocacy on behalf of the junk food. industry by certain Member States where corporate influence on policy exceeds that of public health advocacy.

The same day a colleague in the UK sent us a hot copy of the exposure of sugar industry subversion of the evidence on dental caries *published by PLoS Medicine* in its March issue. Next day a friend in South Asia sent us the excoriating investigation by Anne-Emanuelle Birn of the University of Toronto, *published by Hypothesis*, of the Gates Foundation moloch, and the lock-hold this major Coca-Cola and McDonald's shareholder has on various World Health Organization programmes.

The networks we have throughout the world nourish us with information, advice, leads and ideas. Keep them coming, please! 'The fate of nations is determined by what they eat' said *Jean Anthelme Brillat-Savarin*. We agree. Nutrition is right up there. Get food systems wrong and civilisations collapse. Our topic needs teams of investigators expected to produce regular front page news stories, plus sizzling agenda-setting features by stars in the profession. But no periodical in the world comes close, not even *The New York Times*. A number of magazines, including *New Internationalist*, *Mother Jones* and *The Nation*, run searching stories. *Marion Nestle*, Michael Pollan and Yoni Freedhoff publish scintillating blogs.

The billion dollar Bill. If Bill Gates was a country, in terms of money he would be #37, next to Switzerland. Gates is the biggest funder of WHO, for projects specified and earmarked by Gates

A story behind the stories

So what should we do? Specialist publications typically boost their topic. Law journals uphold the legal profession. Science magazines are proud of science. Political monthlies and weeklies may snap at the heels of the parties whose ideology they stand for, but they do not doubt the value of politics itself. Such glad confidence is no longer possible in the field of conventional nutrition. The thrill has gone. Here is a familiar joke. The scene is introductions at a cocktail party.

Enquirer	I say, what do you do?
Nutritionist	Oh, I am a nutritionist
E	Ah, so why is the world getting fat?
N	Um (goes to the bar for another drink)

We were about to pick somewhat gloomily at the feast of newly arrived documents for our limited *Update* space, when two thoughts occurred. First, their stories are new in the usual sense, but also are old – essentially what they say is repeated again, again and again. Ceaseless lamentations lose traction. Second and related, the whole story is not just about Big Soda, or Big Bill, or corporate masterminding of the United Nations, important though these are, as they come around, around and around.

Specific stories can signal bigger issues, to be identified and confronted. One is the state of conventional nutrition itself as a science and profession. Indictments are that it is sick, suffering from obscurity, or ignorance, or obsolescence, irrelevance, incompetence, complacency or venality. See also the *Update* stories that now follow. Altogether this obviously goes too far. Much of conventional nutrition remains noble. Its practice saves lives and protects health. Besides, an indictment is not a verdict, but a charge that needs to be addressed. If substantially justified, a programme of radical reform is required. Is conventional nutrition burned out? If so, can a firebird, a phoenix, arise from its ashes? We will spell out the indictments in future *Updates*, will welcome challenges and refutations, and will then make the case for what we now name Operation Phoenix.

The Update team. Operation Phoenix. [Big Food Watch. Hot stuff] [Update]. World Nutrition April 2015, 6, 4, 243-245

. *Protein*

The fat cat theory

Access Appetite May 2012 David Raubenheimer et al on protein here
Access December 2012 Carlos Monteiro et al Food System position paper here
Access 2014 British Journal of Nutrition David Raubenheimer et al on protein here

What do burgers, bottle-feeding, climate disruption, fat cats, the nitrogen content of plants, night shift work, and poverty, have in common? The Protein Leverage Hypothesis, and David Raubenheimer

The Update team reports:

This *Update* report outlines the fascinating proposal that the macronutrient responsible above all others for the global obesity epidemic is not dietary fat, and is not carbohydrate (or to be more meaningful, processed carbohydrates), but protein. Or rather, lack of protein, as a result among other reasons of ultra-processing.

Relevant here is the famous key and light joke featuring the 13th century Seljuk Sufi sage, *Mullah Nasrudin* (1). One late evening he was walking home. Upon arrival he was obviously upset. A young man observes his distress. 'Mullah, pray tell me: what is wrong?' Nasrudin replies 'Ah, my friend, I seem to have lost my keys. Would you help me search them? I know I had them when I left the tea house.' For quite a while the young man searches here and there but no keys are to be found. He looks over to Nasrudin and finds him searching only a small area around a street lamp. 'Mullah, why are you only searching there?' Nasrudin replies 'Why would I search where there is no light?' In this analogy, the key is the solution to a problem, and the light is the illumination shone by evidence from the results of series of scintillating statistically significant randomised controlled trials and cohort studies.

The nutrition and chronic disease wars are between fats and their fractions, and carbohydrate (and alcohol, sometimes). Protein has been ignored, left to those scientists concerned with 'classic' undernutrition (2). But absence of evidence is not evidence of absence.

The primal appetite for protein

So this season's *WN* prize for the most wonderful idea in our field that really might be true, goes to nutrition ecologist David Raubenheimer (last picture above) and his colleagues at the University of Sydney, for their Protein Leverage Hypothesis (3,4). This proposes a unified causal link between burgers, bottle feeding, climate disruption, pet chow, the nutritional composition of plants, night shift work and poverty, with the global epidemic of obesity. It also implicates transnational corporations, which we at *WN* should declare as one of our interests. *WN* has constantly developed and resolutely championed the thesis indicting corporate-generated ultra-processed products since 2010, in our *Food System* series.

At the centre of the hypothesis is protein. The reasoning is as follows. Humans are evolved with a primal appetite for protein. In nature, sources of protein both from animal sources and from combinations of plant sources are adequate. But anything that depletes protein in food systems will cause compulsion to eat too much food in order to gain adequate protein. So the other two macronutrients contained in food, fats and carbohydrates, whose function is to supply energy and also to be stored as body fat for use at times when food is in short supply, will be over-consumed.

But what about infant formula?

So what about infant formula, which is higher in protein than breastmilk, known to be a cause of overweight in infancy which often tracks into later childhood and adult life? Surely this destroys the hypothesis? Not at all. The Sydney team proposes that consumed as it is at the very beginning of life, formula feed is liable to induce artificially high levels of appetite and hunger for protein, which persist into childhood and adult life. Exquisite! As they say (4):

> Diet early in life and *in utero* has a profound impact on the amount of protein we need throughout our lives, which in turn influences our energy intake. Anything that influences how much protein we need can increase our risk of becoming obese. Increased protein intake could lead us to process protein less effectively throughout our lives, which means we'll need more protein. To get the amount of protein we need, we'll be forced to eat more, and by eating more we are more likely to become obese.

Climate disruption? The more carbon in the atmosphere, the lower the ratio of protein in plants. Climate disruption dilutes nutrients in plants, In high temperatures and in an environment high in carbon dioxide, levels of protein in leaves drop, and of sugars and starches increase.

> The result of this decline in plants' protein content is that we need to eat more of them… Since more than 80 per cent of the calories we consume come from plants, changes in plant composition will have a major impact on the human diet.

The fat cat theory

This also seems to contradict the hypothesis, because plant foods are low in dietary energy and high in nutrients. But this is only when they are consumed whole, or minimally processed within meals. Now though, plants are increasingly substrate for ultra-processed products formulated using very cheap industrially processed oils, sugars and syrups, and which are depleted in protein. These (4):

> Bypass ecological constraint… on the availability of non-protein energy, concentrating these nutrients into foods that are easily obtained (cheap and highly accessible through vending machines, fast-food chains and supermarkets), rapidly ingested (refined and highly palatable), quickly extracted into the body (easily digested with high glycaemic loads) and that readily contribute to positive energy balance (because limited physical activity is required for their acquisition).
>
> [They] result directly in an increased intake of non-protein energy [and] can also detract from counterbalancing the diet with additional protein. They do this through the addition of savoury flavours that are usually associated with protein-rich foods, thus mimicking complementary foods and deceiving the food selection mechanisms into further intake of non-protein energy. The global rise of ultra-processed products, largely driven by powerful transnational corporations, began in the 1980s and thus coincides closely with the period in which there has been a doubling in the rates of obesity.

Poverty? Ultra-processed products are made from very cheap ingredients and often sold cheap, so impoverished people buy more of them. So do shift workers. Animal feed? This is increasingly ultra-processed and depleted in protein. We will hear more about the Protein Leverage Hypothesis. Let's call it the Fat Cat Theory.

Note and references

1 Martinez-Cordero C, Kusawa C, Sloboda D, Stewart J, Simpson S, Raubenheimer D. Testing the Protein Leverage Hypothesis in a free-living human population. *Appetite* 2012, **59**, 312-315.

2 Raubenheimer D, Machovsky-Capulska G, Gosby A, Simpson S. Nutrition ecology of obesity: from humans to companion animals. *British Journal of Nutrition* 2014. doi:10.1017/S0007114514002323

3 A modern variation features a drunk, a lamp-post, and a policeman.

4 In the 2003 World Health Organization '916' report on *Diet, Nutrition and the Prevention of Chronic Diseases*, for instance, the table on dietary constituents and risk of weight gain and obesity ranks 'protein content of the diet' as 'possible no relationship', with no words in the accompanying text.

*The Update team. The fat cat theory. Idea. Protein [Update]. World Nutrition April 2015, **6**, 4, 246-248*

WN *Hot stuff. Cholesterol*

Eggs, bacon, shrimps, back on the menu!

Time magazine covers published in 1984, 1989, and 1999. The cover feature line on the left is 'Cholesterol. And now the bad news'. On the right the cover line is 'Cholesterol. The good news'

The Update team reports:

The Dietary Guidelines for Americans Committee have now made the mother and father of all nutritional U-turns. Their draft report, now out for consultation, states:

> Cholesterol. Previously, the Dietary Guidelines for Americans recommended that cholesterol intake be limited to no more than 300 mg/day. The 2015 DGAC will not bring forward this recommendation, because available evidence shows no appreciable relationship between consumption of dietary cholesterol and serum cholesterol… Cholesterol is not a nutrient of concern for overconsumption.

This follows the American Heart Association, whose campaign against dietary cholesterol started in 1961 was trashed half a century later in 2013, in a report rating the evidence as 'insufficient'. 'Looking back at the literature, we just couldn't see the kind of science that would support dietary restrictions' said AHA panel co-chair Robert Eckel of the University of Colorado. Long before, *Time* magazine had set the agenda, as seen in its covers of 1984, then of 1999 and 2014 (above), amplified by a savage on-line blog account of *how the cholesterol story began in the 1950s.*

Dariush Mozaffarian, dean of the school of nutrition science and policy at Tufts University, says 'In the general population, there's really not any strong evidence for a link'. David Katz, director of the Yale prevention research centre, is more forthright. Dietary cholesterol isn't solidly linked to cholesterol levels in the blood, he says. 'There's virtually no association'. Down the decades the science has not changed. Robert Eckel explained that recommended figure of less than or a maximum of 300 milligrams a day is 'just one of those things that gets carried forward and carried forward even though the evidence is minimal.'

Eight sources of dietary cholesterol. Eggs, liver, fatty fish, butter, shrimps, sausages, meat, cheese: mostly nourishing fresh food. Campaigns against dietary cholesterol have been a public health disaster

A public health disaster

Half a century ago, dominant scientists in the US decided that because the coronary arteries of people with advanced heart disease contain a lot of blood cholesterol, it is essential to consume less dietary cholesterol. The line was maintained down the decades because the dominant US groups were stubborn, and others said that some foods high in dietary cholesterol are also high in saturated fat, so what did it matter.

Another excuse has been that there is no requirement for dietary cholesterol, so 'the lower limit is zero' (WHO, 1990) and 'it is advisable to keep the intake as low as possible' (WHO, 2003). Given some common sources of dietary cholesterol, this amounts to saying that there is no requirement for fresh foods like eggs, liver, fatty fish and shellfish, so don't eat them. This can make nervous consumers scared of all fresh foods other than vegetables, legumes and fruits, which has been bad for the meat, dairy and egg producers, but is very good for transnational manufacturers of oily, sugary or salty ultra-processed products made with ingredients of plant origin. They are licensed to puff their horrible products all over the world as if they are healthy, with big type labels claiming 'zero cholesterol'.

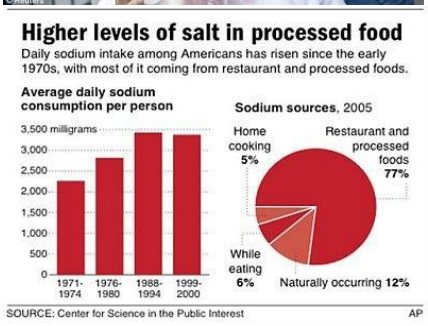
The evidence on dietary cholesterol has always been flimsy. Yet while stating that the evidence for cardiovascular disease is 'contradictory', the 2003 WHO report conclusion was 'probable'. Eh? More, the report set the goal of less than 300 milligrams a day in the final list of general recommendations for all diet-related chronic diseases, despite the evidence for obesity, and for diabetes, osteoporosis, cancer and dental caries, the other diseases examined, being zilch, nada, zero! The cholesterol position has also been a professional bonanza. Great industries have sprung up to check blood and give drugs. The story of the inflation and collapse of the cholesterol story has discredited nutrition science. The fatwa on dietary cholesterol, although now lifted in the US (subject to consultation) will remain a public health disaster. The memory will linger on throughout the world for decades.

The Update team. Eggs, bacon, shrimps, back on the menu! Hot stuff. Cholesterol [Update]. World Nutrition April 2015, ***6****, 4, 249-250*

WN *Hot stuff. Statistics*

Lies, damn lies, and...

Access November 2014 Int Journal of Obesity David Allison et al paper here



Estimates of how much and what people eat, from which dietary guidelines are derived, are mostly based on surveys of what and how much people say they eat. Are they accurate? No, they are not

The Update team reports:

You know the famous phrase – 'lies, damn lies, and statistics', first said possibly by British prime minister Benjamin Disraeli, possibly by US writer Mark Twain. There is a riposte, attributed to the statistician Robert Giffen – 'there are liars, there are outrageous liars, and there are scientific experts'. Well, this is all good fun but serious too. The two quips have the same sting. Most of us most of the time rely on experts, who increasingly rely on statistics. The analogy with mediaeval priests intoning in Latin is irresistible, except that now it's not revelations, it's numbers. So many!

Take dietary surveys, the basis for recommendations on which public policies on food, nutrition and health are based. Most of these are in the form either of 'food frequency questionnaires' posted to people, asking them what they ate, or '24-hour recalls', in which people are asked by telephone or interview what they ate. Both methods enable surveys of many thousands of people, which improves the chances of getting statistically significant results. Most leading nutritional epidemiologists, while accepting that these methods are rather crude, say that errors of recollection tend to cancel one another out and that the results are accurate.

Orthodoxy and reform

But there is schism. A recent paper (1), accessible above, strongly disagrees, in the case of estimates of energy intake and expenditure. It is impressive for four reasons. First, its language, while being a bit tortuous, is very strong:

> It is time to move from the common view that self-reports of energy intake and of physical activity energy expenditure are imperfect, but nevertheless deserving of use, to a view commensurate with the evidence, that self-reports of EI and PAEE are so poor that they are wholly unacceptable for scientific research.

Mastermind of the paper David Allison of the University of Alabama at Birmingham, has characterised findings from food frequency questionnaires as 'a house of cards'. Second, the paper is as it says, trashing many hundreds of papers in respected journals whose conclusions form the basis for public policies on body mass and physical activity all over the world. Third, the paper is signed off by 37 members of the 'energy balance measurement working group' (all but 3 from North America and Europe) who include heavy hitters such as Arne Astrup, George Blackburn, John Foreyt, James Hill, Ian Macdonald, Stephen O'Rahilly and Wim Saris.

Fourth, common sense says that they are right. See the pictures above. Errors from self-reporting of energy intake are not likely to be random. The more worried people are about their habits and weight, the more they will – accidentally or on purpose – under-report consumption of food or products they believe to be fattening, like confectionery, sugared drinks or fast food, or which they believe to be bad for them, like alcoholic drinks, or which they eat compulsively or secretly, like chocolate.

The issue is not just energy intake. As stated a decade and more ago by some distinguished rebels, food frequency questionnaires are liable to be grossly inaccurate records of diets in general, and can produce results on critical public health issues such as diet and cancer, strikingly different from results obtained by intensive measurements of smaller numbers of people involving biomarkers (2,3). So what is the answer? A lot more objective, accurate – and expensive – clinical research, say the authors. Most of them are laboratory scientists.

References

1 Dhurandhar N, Schoeller D, Brown A *et al.* Energy balance measurement: when something is not better than nothing. *International Journal of Obesity* November 2014.

2 Day N, McKeown N, Wong M *et al.* Epidemiological assessment of diet: a comparison of a 7-day diary with a food frequency questionnaire using urinary markers of nitrogen, potassium and sodium. *International Journal of Epidemiology* 2001**, 30**, 309-317.

3 Kristal A, Peters U, Potter J. Is it time to abandon the food frequency questionnaire? Editorial. *Cancer Epidemiology, Biomarkers and Prevention* 2005, **24**, 12, 2826-2828.

*The Update team. Lies, damn lies, and… Statistics. [Hot stuff] [Update]. World Nutrition April 2015, **6**, 4, 251-252*

***WN** Idea*

Why cooking, ultra-processing, make you fat

Access December 2012 Carlos Monteiro et al on The Food System here
Access Dietary Guidelines for the Brazilian Population here

Above, potatoes, raw, cut, cooked, mashed. The more that any food is processed, the more of its dietary energy is available for the body to absorb. This is one reason why 'a calorie is not a calorie'

Richard Wrangham and Rachel Carmody report:

Editor's note
Richard Wrangham, author of *Catching Fire: How Cooking Made Us Human*, and Rachel Carmody, are at Harvard University's School of Human Evolutionary Biology

Food processing includes slicing, blending, mashing and cooking, or using refined instead of unrefined flour. In countries like the US processing is mostly done by the food industry before you buy. It is also done in your home when you prepare a meal. Its effects can be big. If you eat your food raw, you will tend to lose weight. If you eat the same food cooked, or made a basis for a processed food product, you will tend to gain weight. Same calories, different outcome.

Hundreds of thousands of years ago, when early humans learned to cook they were able to access more energy in whatever they ate. The extra energy allowed them to develop big brains, have babies faster, and travel more efficiently. Without cooking, we would not be human. Animal experiments show that processing affects increase in dietary energy absorbed, and thus increase in body weight, whether the energy source is carbohydrate, protein or lipid. In every case, the more processed foods are, the more dietary energy is available to an eater.

Take carbohydrates, which provide more than half of the world's calories. Their energy is often packaged in starch grains, dense packets of glucose digested mainly in your small intestine. If you eat a starchy food raw, up to half the starch grains pass through the small intestine entirely undigested. Your body gets two-thirds or less of the total calories available in the food. The rest might be used by bacteria in your colon, or might even be passed out whole.

Even among cooked foods, digestibility varies. Starch becomes more resistant to digestion when it is allowed to cool and sit after being cooked, because it crystallises into structures that digestive enzymes cannot easily break down. Stale foods like day-old cooked spaghetti, or cold toast, give you fewer calories than the same foods eaten piping hot, even though technically they contain the same amount of stored energy.

The lesson of puffed pellets

Highly processed foods are not only more digestible; they tend to be softer, requiring the body to expend less energy during digestion. Researchers fed rats two kinds of laboratory chow. One kind was solid pellets, the type normally given to laboratory animals. The other differed only by containing more air: they were like puffed breakfast cereal. Rats eating the solid and puffed pellets ate the same weight of food and the same number of counted calories and they exercised the same amount. But the rats eating the puffed pellets grew heavier and had 30 per cent more body fat than their counterparts eating regular chow.

The reason why the puffed pellet eaters absorbed more energy and grew heavier is that their guts didn't have to work so hard. Puffed pellets take less physical effort to break down. When rats eat, their body temperature rises due to the work of digestion. A meal of puffed pellets leads to less rise in body temperature than the same meal of solid pellets. Because the puffed pellets require less energy to digest, they lead to greater weight gain and more fat.

Our bodies work the same way. They do less work when eating foods that have been softened by cooking, mashing, or in the form of packaged products. Our favourite foods have been so lovingly prepared that they melt in the mouth and slide down our throats with barely any need for chewing. No wonder we adore them. Our taste preference is nature's way of keeping as much as possible of these precious calories. But in today's over-fed and under-exercised populations, nature's way is not the best way.

If we want to lose weight we should challenge our instinctive desires. We should reject soft white bread in favour of rough whole wheat breads, and reject cooked vegetables in favour of raw vegetables.

Wrangham R, Carmody R. Why cooking, ultra-processing, make you fat [Update]. World Nutrition April 2015, ***6,*** *4,253-254*

***WN** Big Food Watch*

Is junk getting trashed?

Tom Philpott reports:

Editor's note

Tom Philpott is a farmer and the agriculture and food editor of *Mother Jones* magazine, from which this *Update* is edited.

Not long ago, the great processed-food corporations like Kraft and Kellogg's towered over the US food landscape. But now, Big Food has fallen on hard times. Conagra, which owns Hunts, Reddi Whip, Ro-Tell, Swiss Miss, and Orville Redenbacher and Chef Boyardee, recently sacked its chief executive officer. Kraft, purveyor of Oscar Mayer deli meats, Jell-O, Maxwell House coffee and Velveeta cheese, also recently shook up top management, and reported sluggish sales in 2014. Cereal titan Kellogg's has seen its sales plunge 5.4 per cent over the past year.

Part of the problem is currency fluctuations. Having conquered the US market, Big Food for years has looked overseas for growth. Recently, a strong US dollar has cut into foreign profits, because a pricier dollar makes overseas sales worth less when they're converted to the US currency, as the *Wall Street Journal* recently reported.

The real spectre haunting the industry may be something less ephemeral than the dollar's gyrations. Campbell Soup chief executive officer Denise Morrison recently declared that there's a 'mounting distrust of so-called Big Food, the large food companies and legacy brands on which millions of consumers have relied…for so long'. She also cited the 'increasingly complex public dialogue when it comes to food' as a drag on sales.

In other words, Big Food successfully sold a vision of cooking as a necessary inconvenience, to be dispatched with as painlessly as possible – like, open a soup can for dinner, unleash a squirt of artificial cream onto a boxed cake for dessert – that's starting to lose its charm.

Fresh food is back!

One reason is surely health. Over the past decade, there has been a bounty of research on the ill effects of highly processed food. When Yale researchers David Katz and Samuel Meller surveyed the scientific dietary literature for a paper in 2013, they found that a 'diet of minimally processed foods close to nature, predominantly plants, is decisively associated with health promotion and disease prevention.'

Interestingly, they found that as long as you stick to the 'minimally processed' bit, it doesn't much matter which diet you follow: low-fat, vegetarian, and Mediterranean have all shown good results. Even the meat-centered 'paleo' approach does okay. The authors conclude the 'aggregation of evidence' supports meat eating, as long as the 'animal foods are themselves the products, directly or ultimately, of pure plant foods – the composition of animal flesh and milk is as much influenced by diet as we are.' Cows fed on grass deliver meat and milk with a healthier fat profile than their industrially raised peers.

Meanwhile, as Big Food flounders, sales of fresh food grown by nearby farmers continues to grow fast. A recent US Department of Agriculture report found that there are now 8,268 farmers markets nationwide, which is a jump of 180 percent since 2006. Then there are regional food hubs, which the USDA describes as 'enterprises that aggregate locally sourced food to meet wholesale, retail, institutional, and even individual demand' – the kind of operations that can move fresh food from local farms to, say, grocery stores, so you don't have to show up at the exact right time at the farmers market to get your local collard greens. Food hubs, the USDA reports, have jumped in number by 280 percent since 2007.

Finally, there are schools, a site long dominated by Big Food, where little consumers learn eating habits before they become income-earning adults. According to the USDA, school districts with farm-to-school programmes grew by more than 400 percent between 2007 and 2012. For decades, 'American cuisine' was a contradiction in terms, a punch-line to a sad joke. Billions of dollars in profits have been made betting on the US appetite for processed junk. Those days may be drawing to an end.

Box 1

The Buffett effect

But if the junk-food era is drawing to a close, no one has bothered to inform gazillionaire investment mogul and octogenarian Warren Buffett. 'I'm one quarter Coca-Cola,' Buffett recently told *Fortune*'s Patricia Sellers. 'If I eat 2,700 calories a day, a quarter of that is Coca-Cola. I drink at least five 12-ounce servings. I do it every day.'

In addition to *being* one quarter Coke, Buffett literally owns 9 per cent of Coca-Cola, through his conglomerate, Berkshire Hathaway. And the cagey old investor apparently knows what he's doing. Even though soft-drink sales have been declining for years, Coke's share price has nearly doubled since 2011, borne up by financial engineering tricks like share buy-backs, *Fortune* reports. In addition to regular infusions of the sugary soft drink, Patricia Sellers also reports that Warren Buffett's diet regimen includes breakfasts of Utz Potato strings and chocolate chip ice cream.

Stop Press. At the end of March Warren Buffett masterminded a merger of the snack conglomerate Kraft with the soup conglomerate Heinz.

*Philpott T. Is junk getting trashed? [Big Food Watch] [Update]. World Nutrition April 2015, **6**, 4, 255-256*

Brazilian dietary guidelines

What and how to eat

Nathanael Johnson reports:

Editor's note

Nathanael Johnson is author of the book *All Natural,* one of Michael Pollan's books of 2013. This *Update* is edited from a feature with its interview in *Grist* magazine.

Every five years, people in the US get a new set of nutrition guidelines from the government, sometimes with recommendations that contradict the previous versions. They also get a continuous torrent of food fads and diet books, while getting fatter and less healthy. There's got to be a better way, and Brazil may have found it – by ditching the scientific jargon and instead offering some simple wholesome advice.

The reason nutrition is so acrimonious and confusing is that it's preposterously hard to study. To get solid data, you need to focus on one thing at a time: Do a randomised controlled study say on one particular type of fat. But the effect of a nutrient may depend on other molecules in the meal, on the time of day you eat it, on your genetics, on your lifestyle, on your gut bacteria, on your age – I could go on.

One solution is to make some simple common-sense recommendations. That's the method Brazil uses. Instead of talking about saturated or polyunsaturated fat, the new Brazilian dietary guide has one 'golden rule' that anyone can understand and follow: 'Always prefer natural or minimally processed foods and freshly made dishes and meals to ultra-processed foods.' There's also other advice on how (rather than what) to eat: 'Prefer eating with family, friends, or colleagues.' And 'Make the preparation and eating of meals privileged times of conviviality and pleasure'.

Interview with Carlos Monteiro

I spoke with Carlos Monteiro, based at University of São Paulo, whose Centre for Epidemiological Studies in Health and Nutrition was commissioned by the Brazilian ministry of health to develop the guide.

Q. How did you from go looking at specific nutrients to a holistic focus on eating?

A. One of the first things I noticed in Brazil was that foods like sugar and vegetable oils, that common sense could say are causes of obesity, were in decline. People were buying less and less vegetable oils, and sugar too. And also foods like rice and beans, which are very common foods in Brazil, and even some items like milk and meat were in decline, not so fast as rice and beans, but they were in decline.

Q. So Brazil had an obesity problem growing at the same time it was consuming less of these foods.

A. What we realised is that people were simply cooking less. They had used sugar and oils to prepare food and dessert. And these elements of the diet were being replaced by products that were ready-to-eat. It was not cheese or salted meat. It was certain types of products with lots of ingredients and very little whole food.

Q. That's what you're calling ultra-processed food products?

A. Yes, we created the definition of ultra-processed products to describe these. The fat and the sugar that people were not eating, they were eating much more as contained in these ultra-processed products. So we classified foods according to four categories. These are minimally processed foods, processed food products like cheese and bread, ultra-processed products, and also culinary ingredients, which you don't eat by themselves, you just use them to cook and prepare minimally processed foods. That's a very important difference between our guidelines and other guidelines that refer to oils and sugars as something you need to eliminate from our diet. Without oil and sugar you cannot cook and prepare meals.

Q. I think the point is that you need to communicate to the people, and if you are saying to the people eat less oil and sugar, that's good advice, but it's hard for them to apply that to the oil and sugar in the ultra-processed products that are becoming a bigger and bigger part of their diet. The oil and the sugar that people actually see when they cook is not the problem. Is that right?

A. Exactly. Used in small amounts the oil and table sugar that you use to cook is not only useful, it's essential. Probably in any cuisine in the world you cannot cook without some kind of fat or oil.

Q. How did you decide that ultra-processed products were the category to target?

A. We used recent surveys of what people eat – 30,000 people considering two days of their diet. And we came to the conclusion that the more people used the ready-to-consume products, the more problems they had with the diet. Not just in terms of salt and sugar, but also in terms of unhealthy fats, energy density, essential nutrients, fiber, bioactive compounds, antioxidants. Everything goes in the wrong direction. On the other side, people who preserve that pattern of having freshly prepared dishes had the best diet. The good news is that these people are not the richest. They are from all regions and all socio-economic classes. Many of them live in isolated places in Brazil.

Q. Are you saying that all processed foods are bad? I can anticipate the criticism. I'm grateful that my mother isn't grinding corn on her hands and knees.

A. We are not saying you can't eat any processed food. On the contrary, what we say is base your diet on minimally processed foods. Take rice and beans. They are processed, you have industries behind these foods. Processed foods like oil and even sugar and salt, they are all necessary in moderation. Processed food products, bread and cheese, again we say they have a place. What we say people should avoid is a

very specific set of products that represent 30 per cent of calories for the average Brazilian. In the US, it is double this.

Q. Why can't the US do the same thing as you? And the answer seems clear to me: The politics of food here only allow for small legalistic statement. How did you get this passed?

A. Like other countries, in Brazil the food industry is very important. When we went for a public consultation, as is normal in Brazil, we received over 3,000 suggestions. The comments from the food industry were very negative. They said they would prefer the old guide. Why didn't we use portions or serving sizes? Why aren't we saying everything is good in moderation? Why are we so radical on ultra-processed products? They also didn't like the idea that the guidelines say it's not the solution to take some salt out of a product. This in particular they hate. They say, 'Whoa, we are doing our best to improve our products and you are saying that these premium products are not the solution.' There were even more comments from civil society. Many suggested we state that minimally processed foods are also very good for the environment, for equity, and the fairness of the economic system. And we made this change. We presented this to the Ministry of Health. At the last minute, there was pressure on the minister of health and the launch was postponed. But it turned out that the minister wanted to do it personally in the most important setting, our National Health Council. So the guide wasn't supported by the industry, but there was a lot of support from other areas. That's how politics works.

Q. Here, it's really hard to get a recommendation through without bulletproof science supporting it. In part because we've made recommendations in the past that turned out to be misguided.

A. The food industry is saying, we accept recommendations if they are supported 100 percent by randomised controlled trials. That's something we never would get if we look at actual meals. We used the best evidence we could get from all relevant sources. If you use only randomised controlled trials then you can only make recommendations about nutrients. This is a trap.

Q. One factor that actually could move the political impasse here would be the success of your experiment in Brazil, if it works. You won't have randomised controlled trials, I assume, but there will be evidence generated by this policy change. Are there people studying this?

A. Yes, of course. We have the baseline data so it will be no problem to follow and see what happens with the diet. But what we are very much engaged in now is the dissemination of the recommendations. We want to train health workers to bring this message when they visit people. The other setting is schools. And there will need to be other policies, like taxation, like control of advertising. If you don't control marketing, it's much more difficult to get the messages of the guide to people.

*Johnson N. Brazilian dietary guidelines. What and how to eat [Update]. World Nutrition April 2015, **6**, 4, 257-259*

***WN** Development*

Visions for this century (5)

Access November 2014 Visions for this century (1) here
Access December 2014 Visions for this century (2) here
Access January-February 2015 Visions for this century (3) here
Access March 2015 Visions for this century (4) here
Access this issue Editorial here

Brooke Aksnes writes:

In the last four issues, *WN* editorial family members write about the state of the world now, and their visions for the future. See above. We will continue to publish *Visions* throughout 2015, as *Updates*, and as letters in our *Feedback* section.

Cecilia Castillo

Martin Luther King declared: 'History will record that the greatest tragedy of this period of social transition' (then in the US to civil rights for blacks) 'was the appalling silence of the good people'

What mainly determines population well-being, health, and disease?

The model and development of any society or country, determines its population's state of general health and degree of well-being. A democratic society that ensures

education, food, healthcare, basic sanitation services, decent housing, and jobs, can achieve a good quality of life for all. Conversely, societal models based on ever-increasing consumption and profit, where basic rights and common goods are considered private property, lead to segregation, discrimination and inequity. These societies, like serf systems, prevent the establishment of adequate and fair welfare and health, including nutrition.

What mainly determines good population nutritional status?

For any population to have good nutritional status, sufficient healthy foods must be available and accessible. But this is not enough. Clean water, adequate sanitation and other public health measures, which include vaccination programmes and regular general health examinations, are also essential, not in isolation but all together. Public policies and actions must be integrated. The same applies to good nutrition, which cannot be secured in isolation. For example, nutrient supplementation programmes delivered in impoverished countries as emergency measures, when carried out separately from all that determines states of health and disease, are obviously inadequate. They do not address the underlying and basic causes of malnutrition.

The political will of governments to protect population nutrition is also an important factor. In middle-income countries, the increased buying power of households is an opportunity to increase consumption of healthy foods and improve nutritional status. But in many of these countries, government actions to agree policies and enact regulations that encourage healthy eating are very limited. More and more ultra-processed food products are manufactured, accompanied by intensive unchecked marketing campaigns. These products, attractive because they are formulated to be super-delicious and habit-forming, are available everywhere at low prices. They displace traditional food supplies and dietary patterns, and generate obesity and serious chronic diseases such as diabetes.

How useful are the current nutritional sciences?

The sciences related to nutrition have shown a huge development in recent years. Knowledge of previously unknown aspects of many nutrients including their effects in the human body, and their benefits and risks, is now well understood. The development of the sciences of genetics and molecular biology, together with new analysis techniques and other advances, are impressive. But these are usually not properly reflected in public policies and nutrition programmes.

Are enough governments and official agencies making real progress?

If only! Real progress would make the life of public health professionals and citizens a lot simpler and easier. The facts are though, that governments and official agencies so often succumb to the influence-peddling of wealthy and powerful transnational corporations and other commercial organisations. These conflicts of interest impede governments and may even stop legislation designed to improve the quality of population life, including its nourishment. One example is the blockade that some

governments in Latin America have suffered from corporations and their front organisations when they have decided to enact laws to identify unhealthy food products and thus guide customers to make better choices. There is an issue of sovereignty here – who rules, elected governments, or commercial corporations?

Are current dietary guidelines and nutrition education programmes effective?

Dietary guidelines as a means to educate populations to make healthy food choices are a fine notion. But a narrow view of nutrition that neglects other disciplines such as anthropology and psychology has prevailed, so that dietary guidelines do not induce motivation to change. Also, in many countries dietary guidelines have been distorted as a result of pressure from food product corporations. Brazil is now a remarkable and encouraging exception. There, the new dietary guidelines have captured and summarised the available relevant scientific information and have incorporated all aspects of good nutrition, not only mere nutrients.

What types of civil society groups are most responsive to the big issues?

Civil society movements are essential to bring about positive change, but I cannot identify specific groups. They arise from needs and demands according to the realities and contexts of the communities, regions and nations where they are active.

Name up to three inspiring leaders likely to be active to 2030, with reasons

We will see. These leaders will rise up on the wings of civil society.

Identify up to three of your greatest fears, with reasons

All of my fears can be summarised as one. I fear that governments will lose their sovereignty and ability to represent their people and will surrender their responsibilities to the power of corporations, and a resulting pseudo-democracy that limits civil rights and freedom of expression in which people are no longer citizens.

Identify up to three of your greatest hopes, with reasons

That countries move towards real democracy and thus freedom and fairness. That education and health will be seen as public goods to which all have a right. That everybody will have universal access to safe water and healthy food. Once realised, these hopes will enable countries to work in the framework of justice and dignity.

Make any other remarks as you may wish

We must not remain silent. Martin Luther King rightly said: 'History will record that the greatest tragedy of this period of social transition was not the strident clamour of the bad people, but the appalling silence of the good people'.

Castillo C. Development. Visions for this century: 5 [Update]. World Nutrition April 2015, ***6****, 4, 260-262*