



dr paul clayton's

Health Newsletter

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Snack attack
Folic acid
Cancer scam
Acai juice
Supplements we need them!

Snack Attack – Salt and Sugar in Processed Foods

US consumers are snacking more than ever, thanks to less frequent restaurant dining, lifestyles that encourage on-the-go eating and a tendency to replace meals with multiple, smaller snacks (Snack Foods '11). This meisterwerk, priced at a very reasonable £1,941.96, predicts that US retail sales of packaged snacks will rise from \$64bn in 2010 to \$77bn in 2015 as the boundaries between meals and snacks continue to blur.



And according to the authors, the trend is set to continue: "The children of today, comfortable with replacing entire meals with snacks, will pass these lifestyle traits on to their children, ensuring that snacking will remain a part of American life." We are not so very different. Similar trends can be discerned in the UK also, although here – as is so often the case – we are following some way behind our transatlantic cousins.

Unsafe at any speed

These trends impose a heavy burden of responsibility on the food manufacturers. As they have succeeded in shifting us onto an ever more processed diet, they **MUST** pay more attention to the nutritional properties of their foods if we are not all to succumb to obesity, accelerated ageing and the entire gamut of the diseases of 'civilisation'.

You may remember Ralph Nader's book *Unsafe At Any Speed* that indicted Detroit for making cars that killed their occupants. We need a new Ralph Nader to expose the harm that the major food manufacturers do to their customers with their shoddy, badly designed foods and beverages.

Must healthier foods taste less good?

Some recent foods are steps in the right direction but the regulatory climate, which prevents food companies from making serious health claims even where there is supporting evidence, hugely discourages progress. And although a few consumers call for healthier products, there are many more who are not interested. One reason for consumer apathy is the idea that healthier foods don't taste good. In some cases this is true; low salt foods can be pretty dull, although long-time readers of my nutritional meanderings will know that there are healthy and very palatable salt substitutes available.

Palatal shift – adapting to more or less salt

Food companies who don't want to incur the minimally increased costs of salt substitutes blame the consumer, and moan about palatal shift. This refers to the way in which tastes change; as people eat more salt, their palate desensitises, so they add more salt than before. When they reduce salt in their foods, dishes initially seem tasteless, until after 2 to 4 weeks salt sensitivity returns and once again the food seems perfectly tasty. But in reality, most people drop out before palatal shift can occur, and go back to their high-salt way until they end up with hypertension, or have a stroke. At that point even the most stubborn individuals start to re-think.

Palatal shift – adapting to more or less sugar

Now there is new evidence that a similar palatal shift may occur with sweet foods (Sartor et al '11). This paper refers to two separate trials, each of which produced fascinating and mutually supportive results. In the first trial, the British researchers (from Bangor University) found that overweight people were more attracted than lean ones to sweet drinks, finding them less sweet than did their slimmer counterparts, who did not consume sugary drinks as frequently.



The lean types were, however, easily converted into liking sweet drinks. In a follow-up study the Bangor team showed that when the lean subjects were given two sugary beverages per day for a period of four weeks, their sensitivity to sweetness diminished and soon they no longer found the drinks excessively sweet. Their palates



had adapted to the high-sugar diet, and they now needed more sugar to achieve the same level of sweetness. They had adopted the 'fat' palate.

According to the authors, as sweet 'treats' became less rewarding, the person tended to look for more sweet food or drink, leading to a circle

of consuming ever-increasing amounts of sweet food and empty calories. This way led to obesity and should, the authors suggested, be discouraged by means of a **sugar tax**.

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Sugar tax?

This strategy had already been recommended by other key scientists (Brownell & Frieden '09), who calculated that a tax of a penny per ounce on sugar-sweetened carbonated drinks could reduce consumption by more than 10%, raise \$1.2 billion a year in New York State alone, and would be "highly effective" in reducing the \$79 billion in annual health care costs associated with obesity and overweight across the country. In this context, it is worth pointing out that the average American adult drinks 46 gallons of sugar-sweetened beverages each year!

The Bangor trial was a small one, and was unsurprisingly jumped on by the British Soft Drinks Association. They hate the idea of a sugar tax, and opt instead for 'empowering consumers and citizens.' As an experiment, you might try counting how many outlets you see in an average day selling sweetened drinks. If you live or work in an urban

Supplements - who needs them? ... We do!

A recent NHS report with the above title trotted out, yet again, the hoary old idea that nobody needs supplements (NHS '11). I always like to take a measured view of these things, so let me just say that this report is a toxic blend of prejudice, ignorance, crass stupidity, selective reporting and bureaucratic obfuscation, masquerading as science.

The report critiques single nutrients, a pharmaceutical strategy totally inappropriate when dealing with nutrition. The report's authors, who do not identify themselves, omit any reference to the best substantiated products (such as the 1-3, 1-6 beta glucans); and they actually recommend anyone wanting to take a supplement to seek advice from a GP first! I frequently teach GPs and they are, for the most part, deeply ignorant about the pharmacology of food derivatives – hardly surprising, as they are only taught the pharmacology of drugs. Very few of them are worth consulting about nutritional issues, and the majority of registered dietitians are no better.

The report's authors appear to be completely ignorant of medical history, and the well-documented relationship between (significantly) higher intakes of phytonutrients and reduced risk of degenerative disease (Clayton & Rowbotham '09). They ignore the findings that so many are malnourished because so few people eat an adequate diet (Krebs-Smith et al

Fish oil

There has been protracted discussion about how much fish oil people



should take to reduce their risk of heart disease. The European Food Safety Authority (EFSA) concluded in 2009 that 250mg should be the labelling reference intake value for long-chain omega-3 fatty acids. In the US, the 2010 Dietary Guidelines did not include specific EPA/DHA recommendations, but instead recommended consumption levels of seafood of 8-12 ounces per week, "which provide an average consumption of 250mg per day of EPA and DHA".

The discussion may be coming to a close, as a new meta-analysis shows that 250 mg of omega-3s may indeed be the

area, and include retail outlets and vending machines, you will likely encounter **over 100 buying opportunities** per day. That is not *empowering*; it is *overpowering*.

Salt – go for low!

Finally, a new paper suggests that the discredited Salt Institute, a food industry front that promotes excessive salt consumption, may still be active. This paper (Leshem '11) purported to show that rats on a low-sodium diet became more nervous, and the author suggested that salt actually helps us deal with stress. I have spent a lot of time in Finland, where the entire population is on a low-sodium diet, and can assure Professor Micah Leshem that the Finns are as good at dealing with stress as his Haifa colleagues. By an amazing coincidence, Leshem's study was co-funded by the very same US Salt Institute.



'10). They stick their fingers in their ears and do not listen to such august groups as BAPEN (the British Association for Parenteral and Enteral Nutrition), whose figures indicate that malnutrition is now costing the UK over £7 billion per year in health care costs.

I thought that these substantial flaws in the report were due to simple ignorance, until I noticed that the paper harps on and on about the risks of health supplements. The authors do not spell any of these out, and that is perhaps due to the fact that they hardly exist. FSA research shows only 11 adverse reactions to food supplements over an 11 year period, the majority of them in the lowest category of harm. Food supplements have an enviable safety record, especially when compared to medical interventions which constitute one of the leading causes of death (Starfield 2000).

Living as we still do in the age of cheap energy, our astonishingly inactive lifestyles have reduced our calorific throughput to an historic low and this, together with sub-optimal food choices, has left almost all of us in need of supplements, or foods with a higher nutritional density. I freely admit that many supplements on the market today are poorly formulated, and many may be over-priced; but this NHS report actively harms our national health.

threshold dose where disease risk reduction emerges (Musa-Veloso et al '11). At this dose there was a 35% reduction in the risk of sudden cardiac death, and a nearly significant 17% reduction in total cardiac deaths, in a population with no known pre-existing coronary artery disease.

My take on this is that it will put pressure on health authorities to establish RNIs (Reference Nutrient Intakes) for the essential fatty acids, but the 250 mg of omega-3s should be seen as a minimum dose. To obtain significant anti-inflammatory benefits from fish oil – for example to treat inflamed joints – you need to ramp up the dose to about 8 grams of omega-3s a day (approximately 1 tablespoon of typical 30% fish oil); and you should ALWAYS combine this with an appropriate combination of antioxidants, such as the flavonoids. This will provide far greater cardio- and general health protection than omega-3s can do alone.

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Acai and allergy/asthma

New research is coming out on certain fruits (and their juices) with a very high content of anti-inflammatory compounds such as flavonols. A new study looked at the ability of **acai juice** to prevent atherosclerosis in an established pre-clinical model, the apolipoprotein E deficient (apoE^{-/-}) 55 mouse (Xie et al '11). The researchers found that a fairly high dose of acai juice prevented the oxidation of blood lipids, reduced levels of some important inflammatory cytokines, and up-regulated 2 key anti-oxidant enzyme genes.



Acai berries

Interesting stuff, but the clincher was that atheroma formation was reduced by between a half and two thirds. A second, rather less well-designed pilot clinical trial found that acai juice

also lowered cholesterol and blood glucose levels in healthy but overweight subjects (Udani et al '11).

Acai berries are particularly potent, but some other berry juices have broadly similar properties. The **lingonberry**, for example, which grows wild all over Scandinavia and goes very well with venison, also contains flavonols; and its juice was recently shown to improve the functioning of blood vessels in rats with high blood pressure (Kivimaki et al '11). Cranberry and blackcurrant juices were ineffective, so bad luck to those who favour Cosmopolitans and Ribena, respectively.



Lingonberries

Wild blueberries, on the other hand, scored highly (Kristo et al '10). These and other reports demonstrate that flavonoids and flavonols are absorbed into the body (Koli et al '10) and exert a range of important anti-inflammatory effects there which undoubtedly



Blueberries

reduce the risk of disease. Berries and berry juices are, therefore, very healthy foods indeed.

An inspired pairing in this area is the combination of such juices with the attested 1-3, 1-6 beta glucan Wellmune (Goodridge et al '11). Wellmune beta glucans have recently been shown to reduce symptoms of allergy by over 50% (in press), and they do this by increasing the critical TH1/TH2 ratio (Klimaz et al '05, Baran et al '07). This cellular shift fundamentally reduces vulnerability to asthma and allergy, and it makes excellent sense to combine it with the anti-inflammatory flavonols and related compounds in acai juice. I have now seen around 30 former asthma patients who, by their own account, say that this combination has dramatically improved their condition. This is anecdotal data and of little scientific value, but I hope to be able to follow up with a proper trial soon.

Cancer scam?

If you find it hard to reconcile the frequent headline claims of 'cancer breakthroughs' with your own experience of cancer in the family, and in the community, you're not alone. A new book by Dr Sam Epstein, snappily titled *National Cancer Institute and American Cancer Society: Criminal Indifference to Cancer Prevention and Conflicts of Interest* absolutely demolishes the cancer industry, including the cancer research organisations, the drug companies they work with, and even many of the cancer charities (Epstein '11).

Epstein is Professor Emeritus of Environmental and Occupational Medicine at the University of Illinois School of Public Health and Chair of the Cancer Prevention Coalition; and he has published copiously in the scientific press. In short, Epstein is an insider, and his criticisms of the disastrous 'War Against Cancer' are trenchant and well informed.

He argues (very convincingly) that the cancer industry has focused on cancer treatments which are toxic and ineffective but highly profitable, at the expense of cancer **prevention**, which is cheaper and more effective but does not generate revenues for the cancer 'industry'.

Epstein shows that the cancer industry has, to keep cash flowing, repeatedly made highly misleading claims (ie lied) to the public. He cites the 1984 announcement by the NCI that cancer mortality would be halved by 2000, the 1998 NCI and ACS announcement of a reversal in the almost twenty-year trend of increasing cancer incidence and death, and the 2003 pledge by NCI Director Andrew von Eschenbach to "eliminate suffering and death from cancer by 2015".

That same year the NCI, ACS and the Centers for Disease Control and Prevention claimed that "considerable progress has been made in reducing the number of people with cancer in the US population" in its 2003 *Annual Report to the Nation on the Status of Cancer, 1975-2000*. That last claim was refuted by NCI's own data, which shows the overall number of people with cancer and incidence rates actually increased by 18%, with 30 to 100% increases in cancers of the liver, prostate, breast, thyroid and brain; so much so that cancer now affects nearly 1 in 2 men, and more than 1 in 3 women.

Generals are often betrayed by politicians, and the politics of cancer explain why the so-called War Against Cancer has been such a disaster. The subject is too complex to tell the whole story here, so for those who would like to know more I recommend Epstein's book. Suffice it to say that I no longer donate to organisations such as Cancer Research UK, but concentrate instead on prevention-orientated groups and strategies.

Smoking cessation is important, as is **cutting down on high-octane alcohol** drinks, and moving toward a **plant-based diet**; but there is room for **supplementation** too. The mass of data on flavonoids and flavonols (such as those in berries and berry juices, left) is very persuasive, and there are good reasons to add 1-3, 1-6 beta glucans to the list also.

There is a badly run and ruinously expensive war on cancer going on, but you don't have to be a participant.

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Too late for folate?

Folate (sometimes known as vitamin B4, as it should be taken 'B4' pregnancy) is not a fashionable vitamin. In many countries the debate is over; in 1998, the USA and Canada determined that folic acid, the synthetic form of folate, should be added to all grain products¹. This policy soon led to a significant reduction in the numbers of babies born with spina bifida and other neural tube defects (NTDs); although wider fortification programmes would have achieved even greater protection (de la Calle et al '03, Baro et al '04, McNulty et al '08). Many other countries joined in. The UK, however, dragged its heels; back in 2000 I heard Godfrey Oakley castigating the UK government's failure to fortify flour with folate as 'public health malpractice', a position I tended to agree with at the time. He subsequently published his views in the BMJ (Oakley '02); and in November 2005, the Scientific Advisory Committee on Nutrition (SACN) issued a draft report recommending mandatory addition of folic acid to flour in the UK.

Oakley's thesis, however, was countered by a number of oncologists, haematologists and geriatricians, who had a rather different perspective on things. They expressed concerns that fortification with folic acid might cause harm to non-paediatric cases, by obscuring B12 deficiency anaemia, and, potentially, by increasing the risk of certain cancers (Kim '96, '03, '04). Moreover, it became clear that synthetic folic acid was metabolised differently from the natural folates (Mason '09).

Public opinion eventually shifted towards Oakley's position. Babies are cute, elderly citizens less so; babies have their whole lives ahead of them, the elderly – by definition – have not. This is not a scientific argument, and 5 years after the SACN recommendations, mandatory folate fortification has still not been agreed on in the UK. This year, however, several studies have been published which help to resolve the issues, and may pave the way for fortification programmes here.

In the first of these, a **study of 2,500 university students** found that there was no relationship between folate levels and B12-related problems (Mills et al '11). According to the report, "High folate concentrations did not exacerbate the biochemical abnormalities related to vitamin B12 deficiency in this population. These results provide reassurance that folic acid in fortified foods and supplements does not interfere with vitamin B12 metabolism at the cellular level in a healthy population."

In the **second study** (Stevens et al '11), the cancer question was also largely laid to rest. It had been known for some time that good folate levels were chemo-protective (ie reduced the risk of cancers being started), and this had already been shown in infants (French et al '03); but there was a sneaking worry that high intakes of folic acid could, paradoxically, encourage the growth of pre-existing cancers,

a situation more likely in older subjects. Colorectal cancer was held to be the most likely cancer to be encouraged by folic acid, and this is why the Stevens paper is so important. This large study, which analysed data from over 100,000 middle-aged and elderly subjects, found no relationship between either intakes of folates from food, or folic acid from supplements and fortified foods, and cancer risk. In fact, higher levels of total folates (from all sources) were associated with a 19 percent reduction in colorectal cancers. The authors concluded that "there is no evidence that dietary fortification or supplementation with this vitamin increases colorectal cancer risk".

A **third, Japanese, study** came to a broadly similar conclusion (Fujimori et al '11). The team, from the Nippon Medical School in Tokyo, was looking at benign colorectal tumours (adenomas) rather than carcinomas, and they too found that folate levels were protective. Specifically, they found that men with blood levels below 8.0 ng (nanograms) folate per ml were 50 percent more likely to develop a colorectal adenoma while women were 23 percent more likely. The team stated, "We offer the first evidence-based recommendation of a minimum essential serum folate concentration level of at least 8.0 ng/ml for effective reduction of the risk of colorectal adenoma." NB. Average UK or American blood levels do not reach this minimum!

As a result of these and other studies, the Brits, Germans and other recalcitrant nations are beginning to fall into line. Like the UK, Germany decided not to fortify all flour products and instead emphasised recommending folic acid supplements to women planning to become pregnant. This is a hopelessly inefficient strategy (Botto et al '06), partly because so many pregnancies are unplanned; and helps to explain why the German incidence rate of NTDs, at around 12.36 cases per 10,000 births, is almost double the



Fortified with folate in most countries, but not in Germany or UK

European average of 7.88 per 10,000. Now, finally, they are starting to consider a mandatory fortification programme (Herrmann &

Obeid '11), as are our very own UK experts.

It is tragic that so many babies were unnecessarily harmed during this last decade by government policies driven by a small group of overly influential figures, whose views on nutritional issues were blinkered and partisan. It is as good an example as any of Max Planck's sad aphorism that science progresses funeral by funeral.

1 Oman was the first country to introduce folate fortification - in 1996.

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