



Dr Paul Clayton's Health Newsletter

Spring is not yet sprung ...

... but it's coming, and so are the allergies, and so are new 'solutions' for those allergies.

One of the latest is *Allergease*, a lozenge developed and launched by the American company Medicus Research. *Allergease* contains a hodge-podge of herbal ingredients including eyebright, nettle and elderflower. 'I started thinking', said company director Jay Udani, 'what could we do besides the standard therapies? I started doing concoctions in my kitchen. Then we took it to a next level and hired a PhD chemist and an herbalist.'

Wot – no alchemist? This is a decidedly 19th century approach but, always interested in novel therapies, I searched for the study which was done to support this product. The results were submitted in poster form at the recent Scripps Annual Conference on Supplements in San Diego and are not yet accessible, so I cannot comment; but frankly, this looks like nonsense, as do most of the other common allergy supplements.

Zinc, vitamin C, apple cider vinegar, local honey, salt inhalation – all testimony to human gullibility and greed. The US showman P T Barnum, whom I rather like, famously said, 'Every crowd has a silver lining'. [Less familiarly, he also said 'Science is the pursuit of pure truth, and the systematizing of it.']

Asthma and allergic dermatitis, rhinitis and conjunctivitis are at all-time highs. There is an emerging consensus that this is due to dietary changes, and in particular the removal from our diet of a handful of constituents:

- the immuno-modulatory 1-3, 1-6 **beta glucans**
- the anti-inflammatory **polyphenols**
- **omega 3** fatty acids

What happens if you put these back into your diet? The beta glucans on their own reduce allergy symptom scores by about 50% (Talbot et al '13), and the polyphenol quercetin (derived

from onions and apples) has a range of complementary and equally potent anti-allergy effects (Shishehbor et al '10, Cruz et al '12, Weng et al '12). The beta glucan/quercetin combo has not yet been through a clinical trial, but in my experience most allergy sufferers who take the two together are able to abandon their medications within a week.

I ♥ polyphenols

Increased intakes of polyphenols (from plants) appear to be highly cardio-protective, according to the results of the international PREDIMED (Prevencon con Dieta Mediterranea) study (Tresserra-Rimbau et al '14).

In this study of over 7,000 participants, the highest intakes of **flavanols**, a group which includes **proanthocyanidins, catechins and theaflavins**, were associated with a 60% reduction in cardio-vascular disease (CVD) risk while the highest average intakes of **lignans** were associated with a 49% reduction.

This wouldn't surprise anyone who is familiar with the literature on polyphenols. These phyto-nutrients combine potent anti-inflammatory activity with vaso-trophism, ie they target the lining of the arteries, where they exert an impressive number of positive effects including:

- ♥ prevention of smooth muscle proliferation (Inaba et al '11)
- ♥ inhibition of atheroma formation (Azorin-Ortuno et al '12)
- ♥ restoration of insulin sensitivity (de Bock et al '13)
- ♥ multiple modification of platelet activity (Santhakumar et al '14)
- ♥ reduction of LDL cholesterol oxidation (Kong et al '14)
- ♥ enhancement of HDL cholesterol levels (Martinez-Lopez et al '14).

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Things not so nice?

menopausal women found that those who consumed sugar-sweetened drinks were more likely to develop the most common type of **endometrial cancer** compared with women who did not (Inoue-Choi et al '13); with the highest intake group reporting a 78% increase in risk. A study from Aberdeen University found that diets containing more snack foods high in sugars and fats were linked to an increased risk of **colorectal cancer** (Theodoratou et al '14).

Does excessive sugar itself increase the risk of clinical cancer, or is a high intake of sugar, as the sugar companies maintain, simply a marker for an unhealthy lifestyle and a poor diet in general? It is always difficult to untangle the numerous confounding variables, but in all likelihood both of these angles are true.

It has long been known that cancer cells like glucose, and are good at soaking it up to utilise as an energy source. It is known, too, that high sugar intakes stimulate the release in the body of insulin and insulin growth factors, which drive cancer growth. Very recently a new link in the chain was revealed: a high intake of sugar switches on a gene called P53, which also speeds up cancer growth (Rodriguez et al '12). Being insufficiently physically active makes matters worse in several different ways, involving such links as AMP-K and M-TOR (Faubert et al '14). At the same time, if you are only eating around 2000 calories per day, and too many of your calories are empty ones, then you will be seriously depleted in many of the cancer-protective compounds that occur in a healthy diet; and you will almost certainly be experiencing chronic inflammation, which is another cancer enhancer.

The link between high sugar intake and heart disease is equally complex. A diet high in sugar would be expected to damage blood vessels via glycation reactions. It is also likely to be deficient in cardio-protectors such as polyphenols and omega 3s, and high in the pro-inflammatory compounds that are formed in so many processed foods.

The intense non-sugar sweeteners are hugely divisive, but the more we know about the problems with sugar and starch, the better they look, especially for sedentary folks. Saccharine, aspartame, sucralose et al have all gone through extensive safety screening; the negative research people quote is so poorly done as to be meaningless, and much of it was funded by – you guessed it – the sugar industry.

Fish pharming

According to the Food & Agriculture Organisation (FAO), we are consuming an average of 17 kg of fish per person per annum (FAO#1), and the figures are increasing. But where will tomorrow's fish come from?

Since 1980 the global volume of wild-caught fish has increased by a third, from 69m to 93m tonnes.

Over the same period, aquaculture has increased nearly 11-fold, from 5m to 63m tonnes (FAO#2). This reflects the cost-efficiency of fish farming. If you want to produce animal protein for human consumption, it is cheaper to raise fish than chickens. Feed conversion ratios are better because fish don't need to be kept warm and they don't need to grow strong (weight-bearing) skeletal systems.

By 2030, the FAO predicts that two-thirds of all fish in the food chain will be farmed (FAO#3), making an ever-increasing contribution to our protein requirements—IF the current epidemics of aquaculture infections can be controlled and contamination problems resolved (Hites et al '04).

But something is missing ...

Wild cold-water fish provide not only protein, but also something much rarer: the omega 3 fatty acids EPA and DHA—essential nutrients that provide us with anti-inflammatory protection and are built into the fabric of our bodies and brains. Wild fish do not *make* omega 3s, but obtain them from marine algae at the base of the cold water marine food chain. Farmed fish contain few, if any, omega 3s.



There are not enough fish in the sea to feed every human even the minimum 250 mg intake of omega 3s that many countries now recommend, and not nearly enough to provide the 5 grams or more that science indicates is needed for optimal health (Brunner '06).

Fish farming will not be the answer unless fish feed manufacturers up their game considerably. The Chinese government is concerned about their children's health and is taking this very seriously (Crawford '14), but the EU is sadly, and as usual, far behind the curve.

“Added refined sugars and starches in the daily diet are undoubtedly contributing to obesity and disease.”

NutriShield contains polyphenols (green tea, curcumin, grapeseed, bilberry) and **omega 3**.
nutrishield.com

ImmunoShield contains 1,3 1,6 beta glucans.
immunoshield.com

Wild fish are high in omega 3 because of the marine algae they eat; farmed fish contain few, if any, omega 3s.

The Dr Paul Clayton Health Newsletter describes developments in the field of pharmaco-nutrition, where nature and science are combined to offer non-drug solutions to degenerative disease.

The newsletters are intended to increase knowledge and awareness of health issues and are for information only. No health claims for specific products are made or intended and the information should not be used as a substitute for medical advice.

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Melatonin—nutrient and political football

Melatonin is a hormone produced by the pineal gland located near the centre of the brain. It has long been known to play a role in the regulation of circadian (daily) rhythms, and such things as sleep/wake cycles; many use it to re-set the circadian clock after long-haul flights, as I certainly do.

It is also a nutrient. Tomatoes and certain other fruits contain high levels of melatonin, especially when picked at night (Van Tassel et al '01). When cows are milked at night, their milk also contains high levels of melatonin, high enough to **aid sleep** (Valtonen et al '05 & '07), a trick well known to the mid-Victorians who regularly used 'night milk' as a sleeping aid. Night milk is not easy to find today, but tart cherry extracts rich in melatonin have also been shown to help induce sleep (Garrido et al '10 & '13, Howatson et al '12), and are being commercialised. [The authors noted that cherry extracts are also rich in anti-inflammatory polyphenols and suggested that this might have contributed to the hypnotic effects, but this seems unlikely. There are many other polyphenol-rich supplements, from green tea to curcumin, and none of these is used as a sleeping aid.]

Melatonin is not, however, just a sleep aid. There is increasing evidence that it exerts significant **anti-cancer properties**. A recent paper indicated that melatonin has the ability to slow the ingrowth of new blood vessels that is essential for tumour growth (Jardim-Perassi et al '14). The authors demonstrated that melatonin significantly slowed the growth of tumours both in vitro and in vivo, and concluded that melatonin has potential as a

therapeutic agent for breast cancer, and may reduce the risk of cancer development. Previous work had shown that melatonin also induced apoptosis in various types of cancer cells (Batista et al '13, Glenister et al '13, Qu et al '13).

Some of these anti-cancer effects may relate to melatonin's ability to up-regulate the metabolic master-switch AMP-K (Kwon et al '10), which has powerful anti-ageing and anti-diabetic effects. Switching on AMP-K will be expected to induce **weight and fat loss**, and other researchers have found pre-clinical evidence that melatonin does this too (Jiménez-Aranda et al '13), although multiple mechanisms appear to be involved here.

Throw in a spectrum of potent and potentially very therapeutic **anti-inflammatory effects** (ie Tian et al '13, Ahmadiasl et al '14, Zhou et al '14), and melatonin begins to look like a very important hormone/nutrient/health aid indeed.

It is just at this juncture that Italian regulators have decided to reduce the amount of melatonin permitted in supplements from 5 mg to 1 mg (www.trovanorme.salute.gov.it '13), setting a very unhealthy European precedent. This is not on safety grounds (melatonin is a very safe compound indeed), but most likely because drug companies promoting synthetic versions of melatonin (such as *Piromelatine*) don't want competition from cheap, natural melatonin. Italian quangos are notoriously corrupt, as are many of their EU equivalents.

This looks very like another example of the kind of regulatory decision making which has nothing to do with our health, and everything to do with their money.

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