



Maximising your Health Span



Dr Paul Clayton

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Colin Rose is the publisher of Dr Clayton's bestselling book *Health Defence* and a member of the Royal Society of Medicine. In this four part series, Colin summarises Dr Clayton's concept of preventative health care for a lay audience.

Part 4. Cutting the risk of Dementia

Dementia is becoming more common as our society ages. And dementia, Alzheimer's and the loss of brain cells *seem* inevitable aspects of the ageing process, but are they?

Gerontologists now believe that we do not inevitably lose brain cells as we age. There are significant numbers of old people who show no signs of intellectual dimming, and experimental

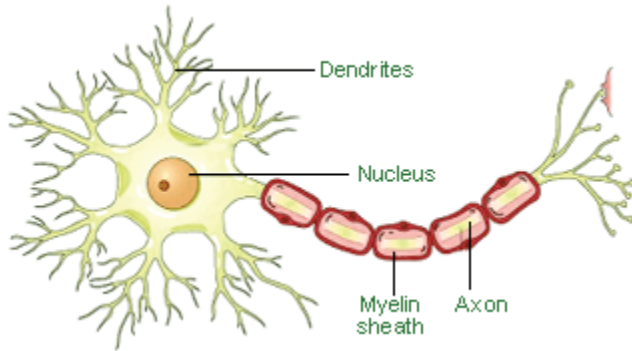
studies have demonstrated that most, if not all, of the impact of ageing on the brain can be prevented by specific nutritional strategies.

But first a little brain biology is essential.

The importance of phospholipids

A brain cell – or neuron – looks like the picture below. You have about 100 billion of them!





The fatty myelin sheath that protects brain cells is vulnerable to oxidation – free radical damage.

Anti-oxidants help prevent that damage.

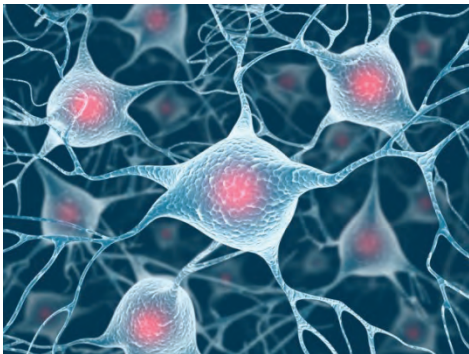
The outer membrane of each axon of the brain cell is a myelin sheath which is made up of fatty compounds called phospholipids.

Phospholipids in turn are made up of fatty acids, which are vulnerable to oxidation via free radical damage (just as cooking fat is vulnerable to free radical damage or rancidity).

Phospholipids are constantly being lost and repaired – in the same way as all other cells in the body. So to maintain the healthy functioning of brain nerve cells, the rate of repair of the brain cell membrane must match the rate of loss. If it doesn't, brain deterioration takes place.

1. Phospholipid repair

If the rate of loss of the phospholipid membranes surrounding brain cells is balanced by the rate of replacement, brain cell membranes remain functional.



You have billions of brain cells and each one is protected by a fatty (phospholipid) sheath that needs a constant supply of nutritional building blocks to maintain its integrity.

On a poor diet, however, losses increase and the rate of repair falls. This leads to increasing neuronal malfunction, membrane breakdown and the death of the brain cell.

Levels of phospholipids in the diet have fallen in the last century, as the main sources of these compounds – crude vegetable oils and offal meats – have largely disappeared from the food chain.

Eggs, the other main source, have been stigmatised as sources of salmonella and cholesterol, and as a result egg consumption fell throughout the '90s.

In addition, lipids (ie fats) account for 60% of the brain's dry weight, and the bulk of these are poly-unsaturates. Unfortunately poly-unsaturated fatty acids are very vulnerable to oxidative stress or oxidation.

To make matters worse, there is a lot of oxygen in the brain, as the brain takes up to a quarter of the body's oxygen intake, even though it is only 3% of body weight. And oxygen can create oxidisation of these fats - hence the need for anti-oxidants.

The solution is to increase anti-oxidant intakes via flavonoids in fruits and vegetables (and a comprehensive, high anti-oxidant supplement), and also increase Omega 3 (fish oil) intake which can be used to build phospholipids.

2. Reducing cholesterol

High levels of LDL cholesterol increase the risk of Alzheimer's, and abnormally high levels of cholesterol are found in specific areas of the brains of Alzheimer's patients.

Cholesterol-lowering drugs are reported to give some protection against developing the disease and to improve symptoms in patients with mild to moderate Alzheimer's.

However, as cholesterol-lowering drugs carry a significant risk of adverse effects, a safer and more natural alternative strategy would be an increased intake of oat-based foods – including porridge! These foodstuffs contain a resistant starch called beta glucan, which lowers LDL cholesterol very effectively. Note: oat beta glucan is not the same as the 1–3, 1–6 beta glucans derived from yeast.)

3. Slowing mitochondrial decay

As tissue ages, the power-generators of the cell – the mitochondria – start to show signs of progressive damage. They become less able to produce energy (via a molecule called ATP) and start instead to generate too many free radicals.



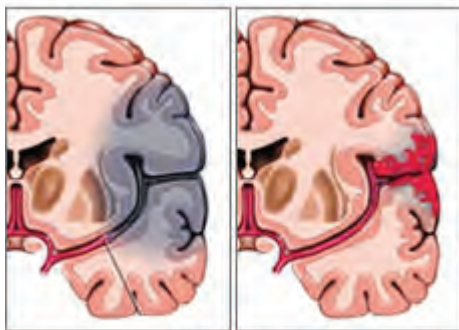
CoQ10 and beta carotene are key nutrients in the defence against mitochondrial decay

When this happens the cell becomes damaged and less able to perform its normal functions or even dies.

This pattern of cellular decay and death undoubtedly affects brain cells and will exacerbate loss of memory and acuity and bring dementia a little closer.

Coenzyme Q10 and beta carotene are key nutrients in a defence against mitochondrial decay as they protect different parts of the mitochondrion and should work well in combination. Co Q10 levels in the body decline from the age of 30 onwards!

4. Cutting the risk of vascular dementia (caused by stroke)



Ischemic stroke **Hemorrhagic stroke**

Strokes occur when the blood supply to an area of the brain is disrupted, so that the tissue supplied by that artery dies.

Stoppages affecting the blood supply to the brain can be caused by either the rupture of a blood vessel (haemorrhagic stroke), or by a blockage in a blood vessel (ischemic stroke).

Both types of stroke are generally due to hypertension, which is in turn largely caused by a chronic inflammation of the arteries and/or veins.

Therefore a nutritional programme designed to reduce inflammation will do a great deal to reduce the risk of micro-strokes and dementia. Curcumin and flavonoids are powerful anti-inflammatories.

5. Increasing berry and other flavonoids



There is good data to suggest that the flavonoid compounds in berry fruits and other vegetables may be also be protective.

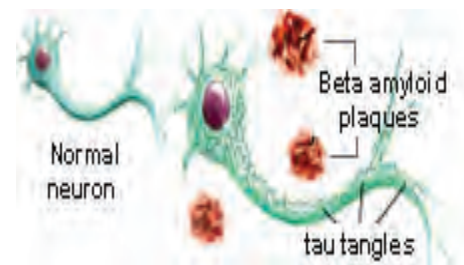
Strawberry, blueberry and spinach have all been shown to prevent and reverse age-related cognitive decline in mice and a high intake of fruit juice appears to be protective in humans also.

But what else can you do to minimise the risk of Alzheimer's?

How beta amyloid is involved in Alzheimer's disease

Anyone who has investigated what is needed to maintain a healthy brain will have come across the term 'beta amyloid'. Here's how this protein is involved in the development of Alzheimer's.

Beta amyloid is chemically 'sticky'. This causes it to form into plaques or 'clumps' outside the brain cell or neuron.



These clumps can trigger inflammation. If this inflammation is not damped down, immune action may kill the brain cell.

Inside the brain cell, tangles called tau tangles can form along the axon – the pathway along the electrical signals of brain activity normally travel – as long as they are not impeded.

The tau tangles, however do interfere with this activity and prevent free movement down the axon. So brain function deteriorates.

Many of the dangerous effects of beta amyloid appear to arise from oxidation – free radical action.

This explanation leads to a further strategy for preventing, slowing or just possibly even reversing the process of mental deterioration.

Logically you would:

1. Block the production of clumps or plaques of beta amyloid – curcuminoids (turmeric) can achieve this.
2. Reduce inflammation at the plaque sites – again curcuminoids and flavonoids can achieve this.
3. Inhibit the formation of tau tangles. A supplement that includes manganese, combined with copper, selenium and zinc and high levels of anti-oxidants may achieve this.
4. Finally, you need anti-oxidants to counter to oxidation caused by free radical action. These include Vitamins C and E, the flavonoids in fruits and vegetables, turmeric, and the minerals that help form your own anti-oxidant enzymes: zinc, selenium, manganese and copper.

You'll have noticed that curcuminoids (derived from the spice turmeric) appear to be very important. Research shows that they help make beta amyloid plaques dissolve.



As persuasive supporting evidence, the incidence of Alzheimer's disease is very much lower in parts of the world where high levels of these compounds are eaten.

One of the lowest age-adjusted Alzheimer's rates in the world was recorded in a rural community in northern India. The incidence of Alzheimer's there was 4.7 per 1000 person-years, compared to 17.5 per 1000 person years in Pennsylvania.

This is a huge 73% reduction – and it holds out real hope of an even greater risk reduction through additional dietary and lifestyle change.

Risk Factors for Alzheimer's

The main risk factors for dementia are:

- Genetic susceptibility - seems to be involved in only about 1 in 10 of Alzheimer's patients.
- Head injury (which kills brain cells) increases the risk of Alzheimer's in later life.
- Cardiovascular risk factors – diabetes, hypertension, high cholesterol and smoking – are very strongly associated with later-life dementia.
- Diabetes is a strong risk factor for strokes and vascular dementia and will therefore exacerbate Alzheimer's.

This list of causes strongly suggests that the best way to avoid dementia is to stop smoking, lose weight if necessary, take more exercise and eat a better (low GI) diet, which reduces insulin levels.

Nutritional recommendations

There is evidence that we begin to lose our cognitive ability in early mid-life; so it makes sense to put a neuro-protective programme in place from about the age of 40–45.

That would start by boosting fruit and vegetable intakes, oily fish twice a week and adding a comprehensive brain health supplement that includes:

- Vitamins A, C (at 500 mg)
- Vitamin D (at 20 mcg)
- Vitamin E (in the form of mixed tocotrienols and tocopherols)
- B vitamins (at least 3 times the RDA), including Folic acid, Betaine
- Vitamin K2
- Lycopene, Beta carotene
- Flavonoids (from green tea and eg bilberry)
- Omega 3 (1000mg)
- Curcuminoids
- Anti-oxidant co-factor minerals including magnesium, zinc, selenium, copper, iodine and manganese.

To these nutritional protectors, must be added the need for exercise. A recent Pittsburgh University study found that walking at least 6 miles (10km)

a week helped maintain brain volume and function.

It should be no surprise that the foods and supplements that help protect against dementia also have proven, positive effects on many other health issues – including cardio-function, hypertension, arthritis, and some cancers.

The same supplement will also help protect eyes and skin because all these functions are subject to cell wear and repair – and the whole purpose of this combination of these nutritional ingredients is to fully support the natural process of repair, and reduce the process of wear.

Which brings us back to the important point that we made in the introduction. Although the most feared degenerative diseases (heart disease, cancer, stroke, dementia, macular degeneration and even diabetes) *appear* to be different – in practice they have many similar causes and therefore a defence against one, helps defend against all.

So an all-inclusive, all-round, protective supplement would include:

1. **An A-Z daily multi Vitamin and Mineral** caplet including vitamin K2 and at levels that are optimum not merely at the RDA level. Sometimes the RDA is adequate, other times (eg B vitamins, Vitamin D, vitamin C) it is inadequate.
2. **Carotenoids** like beta carotene, alpha carotene, lutein (6mg a day) and lycopene (6mg a day) plus **vitamin E** in the form of mixed tocopherols and tocotrienols
3. **Omega 3 fish oil** – 1000 mg a day
4. **Flavonoids** (for their anti-inflammatory powers) and **Isoflavones**

5. **Co-enzyme Q10**

6. **Glucosamine** for its effect on joints and skin (as long as vitamin K is present)

7. **Betaine** (which with other B vitamins can help lower homocysteine levels)

8. **Curcumin** – as a powerful anti-inflammatory.

Of course, such a daily supplement costs more than a simple one-a-day vitamin pill bought for ‘a bit of health insurance’. But nutrients work synergistically with each other and the recommended combination is the result of 30 years research on how to create the strongest and most comprehensive defence against ageing and degenerative disease.

Note

Dr Paul Clayton has advised Uni-Vite Healthcare Ltd on the formulation of a supplement called [NutriShield](#). NutriShield supplies the full range and levels of nutrients that is designed to optimally support the body against the threat of most degenerative diseases. www.nutrishield.com. It is available in a convenient day pack sachet containing 6 caplets.

“Dr Paul Clayton has developed a multitude of creative and innovative solutions for the promotion of human health and wellbeing.”

David Richardson, Visiting Professor, Food and Nutrition Science, University of Newcastle on Tyne

“An invaluable resource for those who want to improve their quality of life.”

Maurice Hanssen, author of *E for Additives*.

Please note : It is important that you do not refrain from taking any prescribed medication, or embark on any new treatment without first discussing it with your doctor or health advisor.

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