Putting it all together to ensure a long and healthy life

Strategies which, when added to a healthy lifestyle, should optimise your health well into your 80s and 90s

Chapter 21

Countering the ageing process

Nobody dies of old age. At this stage of the book we can finally begin to answer the questions posed in the first paragraphs of the first chapter.

- Are we really old at 70?
- Why do we sicken and die in our seventies and eighties when our biological potential lifespan is so much longer?
- Shouldn't we really regard the seventh and eighth decades as middle age?
- And if so, why do the vast majority of us age so prematurely?

The answers to these riddles are all linked. They are also relatively easy to apply.

1 As we age, our diet and life style ensures that we develop increasingly severe multiple micro-nutrient depletion; causing progressive metabolic and physiological imbalances.

2 These imbalances shackle the body's power of repair and allow the process of decay to predominate. This is the ultimate cause of most of the diseases that cripple our later years and eventually kill us, long before our full biological potential.

3 Comprehensive micro-nutrient support is the only way to rectify multiple micro-nutrient depletion, and to reduce the risk of the diseases of ageing. And when we delay the diseases of ageing, we are slowing the process of ageing itself.

Putting it all together

This chapter summarises **fourteen** support or defence strategies that together make up a comprehensive nutritional programme.

The programme will greatly reduce the risk of most of the chronic degenerative diseases, and lower the incidence of many infectious illnesses.

The way ahead

Until today, anti-ageing strategies have been largely unsuccessful. This is because we did not know what the nature of the ageing process was.

I believe that we can now, for the first time, decode the process of ageing: break it down into its sub-routines, and propose rational strategies designed to modify each and perhaps all of the major components of mortality.

Clearly, a wide range of micro-nutrients have a role to play in reducing the impact of ageing.

Anti-oxidants have received most of the publicity; but there is a great deal more to anti-ageing nutrition. Apart from the anti-oxidants, there are at least eight other categories of micro-nutrients which must be available in adequate amounts if the body is to receive optimal nutritional support, and the best chance of realising its true biological potential.

This chapter describes how these nine categories of micro-nutrients modify all fourteen of the sub-routines of ageing being described in the following pages. It presents a composite nutritional anti-ageing strategy, which reflects current leading edge research. It will greatly reduce the risk of most chronic degenerative diseases, lower the incidence of many infectious illnesses, and extend your healthy life.

I have included an optional hormone replacement module. Growth Hormone, testosterone, DHEA, melatonin and other hormones may play a significant role in anti-ageing programmes, but are outside the remit of this nutritional guide. I suspect that an optimal nutritional programme as described below will reduce age-related damage to the hormone-producing tissues, and slow the decline of the endocrine system, thereby making hormone replacement programmes partially or totally redundant.

The following programmes should ideally be added on to a basically healthy lifestyle (ie no smoking, moderate exercise and moderate drinking). But if you are not yet ready to live the good life, the programme acts as a partial antidote, and should still confer considerable health and life-extending benefits.

Healthy lifestyle

The following 14 programmes should ideally be added on to a basically healthy lifestyle (ie moderate exercise, no smoking, moderate drinking).

But if you are not yet ready to live the good life, the programme is designed to act as an antidote, and should still confer considerable health and life-extending benefits.

Nutraceuticals

Nutraceuticals are extracts from foods, presented as capsules or tablets, which have health benefits.

Ageing Mechanisms	Nutritional Counters
1 Excessive free radicals **Aim:** To reduce free radical damage to DNA, proteins, cell membranes and other lipid components such as LDL cholesterol.	a) The trace minerals needed for optimal anti-oxidant enzyme activity include zinc, copper, manganese and selenium. Iron is also commonly required in pre-menopausal women, but should probably not be used by men or post-menopausal women unless iron deficiency symptoms have been diagnosed. The enzymes can be up-regulated by moderate exercise. b) Vitamins C and E are well documented. To these can be added the flavonoids, the carotenoids, alpha lipoic acid, Co-enzyme Q10, and possibly melatonin.
2 Excessive cross-links **Aim:** To protect proteins and other types of molecule in the body from cross-linking and loss of function (glycosylation). This form of tissue damage plays an important role in many of the end-effects of diabetes, including kidney damage, cataract, and lesions of the blood vessels; and in the ageing of the connective tissues such as occurs in skin.	a) Many flavonoids have the ability to block abnormal glycosylation of proteins and this property, together with their anti-oxidant effects, makes them invaluable therapeutic and anti-ageing compounds. Green tea, grapeseed extract, red wine, pycnogenol, ginkgo, turmeric and other sources are all suitable. b) Aspirin is also a good anti-glycosylant, and a widely available alternative to flavonoids in this respect. Gastric irritation is an occasional side effect.
3 Methyl group depletion **Aim:** To supply the body with sufficient methyl groups to achieve adequate DNA methylation; optimise the immune system, the hypothalamic-adrenal axis, liver and kidney function, phospholipid and lipid metabolism and neurotransmitter synthesis; and prevent the toxic accumulation of homocysteine– thereby reducing the risk of heart disease and Alzheimer's.	a) Betaine. b) Vitamin B complex is an alternative, but is not universally effective. c) Choline is less effective than either of the above.

Ageing Mechanism	Nutritional Counters
4 **Pre-biotic depletion** **Aim:** To normalise bowel microbiology and function, and reduce the risk of food poisoning, constipation, colitis, colon and colorectal cancer, liver cancer and possibly breast cancer.	Mixed short- and long-chain non-digestible oligosaccharide fibres (NDOs). Short-chain NDOs such as FOS or beta glucans from oats provide cover for the proxmal colon. Longer chain NDOs such as inulin are likely to be more helpful for the distal colon and rectum.
5 **Membrane breakdown** **Aim:** To prevent the loss of cell membrane components and function which develop when the rate of breakdown of phospholipid structures outstrips the rate at which the body can replace them.	a) Appropriate anti-oxidants to slow phospholipid oxidation. b) Betaine to increase endogenous phospholipid synthesis in the liver. c) Phosphatidyl Serine (PS)
6 **Mitochondrial damage** **Aim:** To prevent the run-down in cellular energy caused by progressive oxidative damage to the mitochondria.	Co-enzyme Q10 and beta carotene to enhance the rate of energy production in the mitochondria and protect the mitochondrial structure. Acetyl carnitine can also improve mitochondrial stability.
7 **Cardiovascular damage** **Aim:** To prevent coronary artery disease, or to reduce pre-existing atheroma.	a) Anti-oxidants to stabilise both the lipids (fats) and the structural elements in the arteries (ie Vitamins E, C, mixed carotenoids and flavonoids). b) Betaine to reduce homocysteine and increase HDL. Lecithin (or another source of mixed phospholipids) can be used to increase HDL levels. c) Omega 3 PUFAs to reduce inflammatory microlesions in the blood vessels, platelet stickiness and cardiac electrical instability.

Ageing Mechanism	Nutritional Counters
8 a) **Elevated blood pressure** **Aim:** To reduce blood pressure. b) **Thromboembolic stroke** (when a blood vessel in the brain is blocked by atheroma and/or platelets) **Aim:** To reduce the risk of thrombus (blockage).	a) Hypertension is an important cause of heart failure and stroke. Switch from sodium salt to a potassium/magnesium substitute. b) Flavonoids and Omega 3 PUFAs to reduce inflammation in the blood vessels, platelet stickiness and cardiac electrical instability.
9 **Nervous system deterioration** **Aim:** To prevent oxidative damage in the central and peripheral nervous systems.	a) Phosphatidyl Serine (PS) combined with appropriate anti-oxidants, ie Vitamins C and E, to support peripheral nerves b) Thyme oil as additional anti-oxidant. Betaine to increase phospholipid synthesis and to reduce homocysteine levels; with B complex for additional support.
10 **Immune system run-down** **Aim:** To maintain near-optimal immune cover.	a) Broad spectrum vitamins and minerals, including mixed tocopherols, Vitamin E and carotenoids. b) Betaine to supply essential methyl groups. c) Glutamine to prevent exercise-induced immuno-suppression. d) An adaptogen such as Eleutherococcus or Withania to prevent stress-related immuno-suppression. e) Q10 to increase cellular capacity. f) Pre-biotics to enhance resistance to gastro-intestinal infections. g) Anti-adhesins: cranberry juice to reduce severity and risk of urinary tract infection; carrot soup to reduce severity and risk of upper bowel infections.

Ageing Mechanisms	Nutritional Counters
11 Connective tissue deterioration **Aim:** To maintain the extra-cellular matrix. Also to prevent the loss of connective tissue in joints, ligaments, bone, the extra-cellular matrix and skin which occurs when the rate of tissue renewal is outstripped by tissue erosion.	a) Glucosamine hydrochloride plus manganese and betaine boosts synthesis of the amino sugar polymers in cartilage and synovial fluid. b) The combination of Vitamin C and zinc increases collagen synthesis, with silicic acid as an optional extra[1-3]. c) The above micro-nutrients are all essential for the formation of osteoid, the precursor of new bone; but for optimal bone regeneration, they must be combined with copper, and Vitamins B6, K1 and D3. d) If significant inflammation is involved, an anti-inflammatory ingredient like turmeric (curcumin), ginger, and/or ginkgo is essential. For skin protection, add carotenoids and flavonoids.
12 Cancer #1 **Aim:** To prevent genetic damage to your cells.	a) Don't smoke, and avoid excessive exposure to the sun. b) Eat plenty of fruit and vegetables, reduce pickles, fried and smoked foods. c) Anti-oxidant and flavonoid supplements. d) Betaine.
13 Cancer #2 **Aim:** To prevent the uncontrolled growth and spread of cancer cells.	a) Carotenoids (lycopene and alpha carotene) and soy isoflavones to force cancer cells to redifferentiate/commit suicide. b) In the case of colorectal cancer, pre-biotics to increase levels of butyrate (another redifferentiator) in the colon should also be considered.

Ageing Mechanism	Nutritional Counters
Cancer #2 cont.	c) Protease inhibitors (soy beans) and MMP inhibitors (blackcurrant and other flavonoids) to prevent blood vessel growth and metastatic spread. d) Baseline (broad spectrum) vitamins and minerals to support immune function. e) Q10 should also be considered as an immuno-potentiator, especially in the elderly. f) Selenium at 150-200mcg a day.
14 **Hormone imbalance** **Aim:** To maintain levels of key anabolic and parent hormones at optimal levels.	a) DHEA (in some countries) OR Yam extract containing standardised amounts of diosgenin boosts levels of DHEA, the parent steroid hormone. b) Growth Hormone levels may be increased by physical exercise, better sleep patterns and the amino acid arginine.

If you look at the above list, you will see that a truly comprehensive nutrition (or nutraceutical) plan would include:

1 Anti-oxidants
2 Vitamins and minerals
3 Carotenoids (like lutein lycopene and beta carotene)
4 Flavonoids (like grapeseed extract)
5 Isoflavones (like genistein)
6 Betaine
7 Omega 3 oils
8 NDO (non-digestible pre-biotic oligosaccharides)
9 Co-enzyme Q10, and glucosamine
10 Adaptogens

Apart from the last nutrient (ie adaptogens), which has a slightly specialist function, all these nutrients are involved in the nutritional jigsaw we referred to in *The Big Picture* at the beginning of the book.

Specialist cases (like brain function in the elderly) might call for extra nutrients like phosphatidyl serine and thyme oil; but in the majority of cases the nutritional jigsaw approach provides comprehensive cover against all the major components of ageing.

Ex uno, plures

Orthodox medicine persists in treating the degenerative diseases as different entities, each with their own pathology; and treated by different specialists, each with their own repertoire of palliative drugs. Cardiologists know little of cancer, oncologists are uninterested in Alzheimer's, osteoporosis specialists have little inclination to study asthma. This reflects how medicine is taught, and, to an extent, the interests of the drug companies. The model is so established that it is hard for clinicians to think of illness in any other way.

For the reader who has got this far, however, a very different understanding is (I hope) beginning to form. The degenerative diseases each have so many nutritional risk factors, that they can all legitimately be regarded as resulting largely from multiple micro-nutrient depletion; with this one common cause manifesting as different disease forms as it filters through the strata of each individual's diet, genetic profile, occupation and life-style.

This is a fairly radical re-structuring of medicine; and it holds out the promise of radically changed models of health care. In the old model, you wait until you fall ill, and then go to a medical specialist for treatments which may suppress your symptoms, but which rarely cure. In the new model you maintain your own health through nutrition, delivered through new supplements and/or functional foods. The old model is straining at the seams, actively harming many patients and consistently failing to provide quality care. The new model holds out the promise of a more profoundly curative, humanitarian and cost-effective form of self-help.

How long before the medical establishment accepts this? That, dear reader, partly depends on you. If you enjoyed this book, please tell a friend. If you have friends who are doctors, tell them. I welcome comment and feedback.

Type B Malnutrition

Type B Malnutrition is rife and clearly drives most of the chronic degenerative diseases. Drugs suppress symptoms but cannot rectify Type B; which is why pharmaco-therapy has produced no cures. Pharmaco-nutrition, however, will do for the degenerative diseases what antibiotics did for the infectious diseases.

Anti-oxidant scores

The average Western diet provides about 1400 ORAC (anti-oxidant) units per day (see *The Big Picture*).

The USDA Home Nutrition Research Centre on Ageing recommend we double or treble this level of intake for better health.

The supplement programme recommended on page 348 would provide approximately 4,500 ORAC units a day.