

THE BIG PICTURE

An overview

The next few pages give you some of the key arguments expanded in the book.

They enable you to grasp the 'big picture' – the core ideas – so that the detail in the rest of the book is easier to understand.

Reading selected chapters

Each chapter has been designed so that it can be read separately. For this reason, certain topics have been re-visited in different sections and contexts.

In nutrition there are many common themes, elements and connections.

Health

The usual medical definition:

Absence of clinically defined disease.

My definition:

Noticeable energy, absence of clinically defined disease – **plus** no signs of sub-clinical, ie pending, disease.

Very few people – perhaps 1 in 10,000 – die of old age. The vast majority of us sicken and die prematurely, picked off by 'natural causes' long before our biological life span has run its course. Average life expectancy in the First World is around 75 years for men and 82 for women; but cell culture studies, and the very few individuals who live on healthily into their second century, indicate that our true life span lies between 110 and 120.

So why is a long and healthy life such a rarity? Why do so few of us live out our biological potential?

We used to die, in the main, of infection or trauma. Twentieth century medicine has scored significant victories against these; and the major causes of ill health and death now are the chronic degenerative diseases such as coronary artery disease and cancer.

What we need is a medicine for the 21st century; a medicine which will prevent these degenerative diseases from making our last years difficult, and extend our healthy middle years.

The foundations for this new medicine have already been published in many thousands of research papers. This book draws the research findings together and translates them into simple guidelines which you can use to improve your chances of living a longer and healthier life.

The drugs don't work

Five out of six 60-year-olds have one or more of the chronic degenerative diseases, such as coronary artery disease, arthritis, osteoporosis, Alzheimer's, or cancer. For these unfortunates, the drugs don't work. They may alleviate some of the symptoms, but they do little to alter the underlying disease, which generally continues to deteriorate.

This is because drugs do not address the causes of these diseases. Based on the concept of the 'magic bullet', they are

designed to block a single step in the generally multifactorial process leading to illness; an inappropriate strategy guaranteeing ineffectuality and a high risk of side effects.

An even more fundamental criticism of modern medicine is that it is practised as crisis management. Wait until the diagnosis, then hammer the patient with drugs. But by the time symptoms of one of these diseases appear, damage has already been done to the body; damage that drugs cannot begin to address.

Drug companies start from the wrong point. They must sell their synthetic, patented molecules – and to a company selling hammers, every problem looks like a nail.

The pre-ill

We now know that the majority of cases of illness in the West are caused by lifestyle factors such as lack of exercise, smoking and nutrition. We also know that these diseases have a long latency period before symptoms appear and a diagnosis can finally be made. Coronary artery disease, cancer, Alzheimer's and osteoporosis do not occur overnight, although the symptoms might do. They are slowly progressing conditions, which develop for years or decades before symptoms finally emerge.

In other words, the majority of apparently healthy people are in fact *pre-ill*. They contain in their bodies the seeds of the illness which will eventually become overt, and perhaps kill them. An artery is beginning to silt up; bone is thinning; brain cells are dying – leading inevitably, eventually, to a heart attack, osteoporotic fracture, or dementia.

But is it inevitable? If we were to focus on the pre-ill, perhaps we could slow or stop these diseases before they became clinical. This is the core of the new medicine; a medicine which concentrates on the pre-ill, analysing the metabolic errors which lead to clinical illness, and correcting them before the first twinge of angina, the first broken bone, or the first shadow on the x-ray.

Prevention or Cure?

A clear equation

The British Health Service is really an 'illness service' – treatment *after* things go wrong. It costs over £750 a year for every man, woman and child in the nation.

The full range of preventative nutritional supplements recommended in this book would cost a fraction of this.

The difference in philosophy is that conventional medicine waits for something to go wrong and then tries to suppress that particular symptom with a chemical with which the body is not familiar.

Preventative nutrition is pro-active and holistic, using compounds which the body is familiar with, and depends on.

It aims to gently boost your body's own repair mechanisms and defences against hostile environmental factors – like pollution, stress, free radicals, toxins, carcinogens, and infectious agents such as bacteria and viruses.

It helps deal with the **causes** of potential problems.

INTRODUCTION: The big picture

Body maintenance

This approach is based on the fact that the body has significant powers of self-healing and regeneration. If that were not the case, our joints and bones would be worn thin by the age of 20; our arteries solid by 30; our brains burned out by 40.

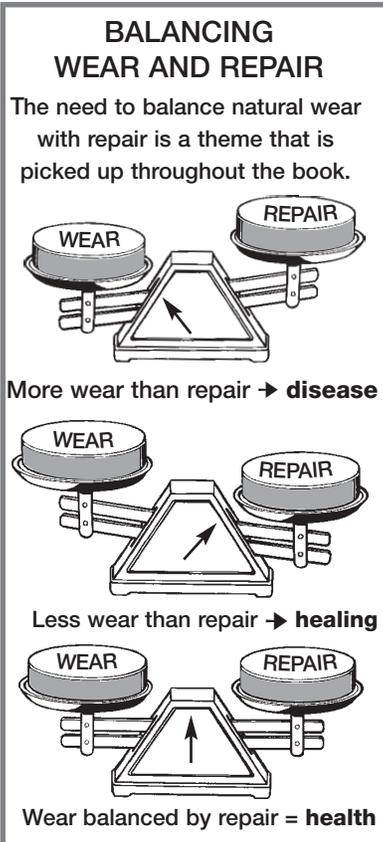
Most of us do better than that. But it is despite our lifestyles, not because of them. Starved of key nutrients, our restorative systems run down, and are eventually overtaken and overwhelmed by the forces of decay.

All biological tissues are dynamic. Their apparent constancy disguises a constant state of flux, with the processes of decay and regeneration going on at the same time. Bones are constantly being built up and worn away, as are joints. Atheroma is constantly accumulating inside the arteries, and just as constantly being removed.

If the processes are in balance the tissue remains intact, and good health is sustained. But if the rate of decay is only a little faster than the rate of repair, there will be a net loss of healthy tissue, a pre-illness growing little by little every day until the clinical illness finally emerges.

This is why we sicken and die prematurely at 75; repair is overtaken by decay, because most people are depleted both in the micro-nutrients needed for tissue repair, **and** those needed to slow tissue decay. When decay outstrips repair, this is termed 'catabolic dominance' and it is largely due to multiple micro-nutrient depletion, also known as Type B malnutrition⁽¹⁹⁾.

Surveys, like the one below, show that *most* people are depleted in *most* micro-nutrients.



VITAMIN INTAKES

US DEPARTMENT OF AGRICULTURE (USDA) SURVEY 1994¹

Vitamin	A	E	C	B1	B2	Niacin	B6	B4	B12
% Population Depleted	55	68	37	32	31	27	54	34	17

This is not the absolute absence of a nutrient that causes a deficiency disease (eg Vitamin C and scurvy) but sub-optimal intakes of many micro-nutrients, causing catabolic dominance, ie wear and decay. This is enough to lead, over a period of years, to debilitating or fatal illness.

Drugs cannot remedy this pattern of multiple micro-nutrient depletion leading to illness. Only well-designed nutritional programmes, specifically assembled to support regenerative function and slow the processes of decay, can do this.

The well-balanced, nutritionally deficient diet

Malnutrition is all too common in the developed nations. This is not the calorie and/or micronutrient deficiency associated with developing nations (Type A malnutrition); but multiple micro-nutrient depletion, often combined with calorific balance or excess (Type B malnutrition)⁽¹⁷⁻¹⁹⁾.

The incidence and severity of Type B malnutrition is worsened if we include the newer micro-nutrient groups such as the Omega 3 oils, lutein, lycopene, various fibre types, methyl groups, isoflavones, flavonoids etc. In every case, commonly ingested levels of these micro-nutrients are sub-optimal, to the point where health is compromised.

Increasingly, Type B malnutrition is coming to be considered as the most important cause of the chronic degenerative diseases. Logically, therefore, the prevention and treatment of these conditions must also be through micro-nutrient repletion programmes⁽²⁰⁾.

Like many doctors, I began my career assuming that you could obtain all the nutrition needed from a well-balanced diet. We evolved without vitamin pills. But the USDA survey, and many other studies^(4, 7-10), show that we are not getting the micro-nutrients we need. There are well known reasons for this.

1 **We don't eat enough!**

We were designed to live active lives, and to consume 3000 to 4000 calories per day. No longer hunter-gatherers, we live sedentary lives, and burn far fewer calories. Our appetites

Changing needs

Our nutritional needs are fine-tuned to conditions of life that existed over 10,000 years ago, when we were evolving.

Genetically, our bodies are the same as they were then – but our diet and lifestyle aren't.

Thousands of generations of people were hunter-gatherers, five hundred generations have depended on agriculture, ten generations have lived since the start of the industrial age and only two have grown up with highly processed 'convenience' foods.

This is a nutritional experiment out of control – and is probably the most important reason why so many of us develop degenerative diseases.

Eating badly

Our eating habits are deteriorating. Children in the UK eat less fruit and vegetables than in the 1950s⁽⁵⁾; and only 15 per cent of Americans eat the recommended amounts⁽⁶⁾.

INTRODUCTION: The big picture

Depleted vegetables

The average mineral content of fruits and vegetables has declined dramatically in the last 50 years.

Between 1940 and 1991 magnesium has declined by 25%, calcium by 47%, iron by 36%, and copper by 62%⁽¹⁵⁾.

Importance of chewing

We have even forgotten how to eat. The Victorians recommended chewing every mouthful 20 times; but today's hurried consumers may only chew two or three times before swallowing. Bolted fruit and vegetables provide fewer micro-nutrients, because unchewed particles pass through our digestive tracts, taking their micro-nutrients with them.

Compared to whole foods that require thorough chewing, highly processed paps that are effectively 'pre-chewed' by the food manufacturers yield their calories more easily⁽¹⁴⁾; but generally deliver fewer micro-nutrients, due to poor formulation.

have shrunk, but not quite enough – which explains why so many are overweight. But when we eat less, we're also consuming fewer micro-nutrients.

2 Too many processed foods

Many (not all) processed foods are depleted in micro-nutrients – and we're eating more processed foods than ever before.

3 Depleted soils

Many soils are low in key minerals, or have become functionally depleted, due to over-intensive farming⁽²²⁾. Plants or animals raised in these areas are depleted in these minerals. This is why UK intakes of the anti-cancer mineral selenium, for example, are worryingly low.

4 Bad habits

Smoking, sunbathing, pollution, excessive drinking or exercise, all deplete the body of anti-oxidants.

5 Ageing

We become progressively more depleted in more micro-nutrients as we get older^(11, 12).

Reduced finances may mean a restricted diet – as (sadly) does institutionalisation. We become less active – so appetite, food and micro-nutrient intake fall further. We lose teeth and opt for softer foods, with fewer of the fruits and vegetables that supply so many micro-nutrients.

Older digestive systems are also less efficient at absorbing micro-nutrients from whatever food is eaten. Finally, older people take more medications, many of which can make micro-nutrient depletion worse⁽¹³⁾.

Only comprehensive nutrition will do

All this explains why, as we get older, we become more likely to get sick and die. It is little to do with ageing, as few of us get even close to our theoretical life span. It is due to a multiple systems failure caused by a cumulative depletion of many micro-nutrients. If you skimp on maintaining your car, it will break down. If you do not give your body the micro-nutrient maintenance it needs, it too will break down.

And as most people are depleted in the majority of micro-nutrients, it doesn't make sense to take a single micro-nutrient.

Think of car maintenance. You need to change the oil every now and then; but you must also replace the spark plugs, tyres, oil and air filters, adjust the fan belt, and so on. And of course a human being is far more complex than a car, and requires much more extensive nutritional maintenance.

Unfortunately, this self-evident truth has been overlooked by many clinical scientists. Wedded as they are to the single agent, 'magic bullet' approach, they find it hard to appreciate the complex relationships between multiple food ingredients and health.

Modern research has shown that Vitamin E reduces the risk of coronary artery disease; but so do fish oil, Vitamin C, the carotenoid lycopene, methyl groups, flavonoids and many other micro-nutrients. Now we understand that all these compounds work in different but complementary ways, it is logical to combine them; and supremely illogical of scientists and regulatory authorities to refuse to deal with 'nutraceutical' combinations of this sort.

The classical approach says that if you give a compound formula to test subjects and obtain positive results, you cannot know which ingredient is exerting the benefit, so you must test each ingredient individually. In the field of nutrition, this is nonsense. It is like the mechanic who, confronted with a chronically under-maintained car, insists on a test drive after changing the oil filter; another after replacing one of the spark plugs – and so on.

Each intervention on its own will hardly make enough difference to be measured. In any case, this approach to car maintenance would take forever, and be prohibitively expensive. To make the car run noticeably better (and last longer), it requires a comprehensive service. Similarly, to enable humans to live healthier (and longer) lives, **comprehensive** nutritional support is indicated.

So should we analyse each individual's nutritional status and then tailor a formula specifically for him or her? After all, different people have different lifestyles, and eat different foods.



If you skimp on maintaining a car it breaks down.
So do people!

Bottlenecks

A theme that recurs in this book is the problem of bottlenecks.

As we get older, we become less efficient at absorbing or forming the nutrients we need.

So it's sometimes necessary to bypass a metabolic bottleneck and consume the nutrient 'ready made'.

Supplementing with Omega 3 rich fish oil is a well-known example, but glucosamine, Co-Enzyme Q10, Vitamin D etc are equally valid candidates.

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The Genome Project

Will DNA research produce health for all? No: most diseases have multiple, non-genetic causes⁽¹⁶⁾. Moreover, faulty DNA is hard to put right.

DNA analysis has many uses, eg in forensics and diagnosis, but relatively few therapeutic applications. These will in any case be expensive, and unsuitable for mass use.

Defence starts with a full range of micro-nutrients

The start point in health care is a full range of vitamins, minerals and other micro-nutrients. Between them, they provide anti-oxidant protection, strengthen the immune system and support the body's own repair mechanisms.

Experts agree!

Leading experts now agree: supplements are needed to make up a well-balanced diet⁽²¹⁾.

Accordingly, one person may be depleted in Vitamin E, methyl groups and Omega 3 oils. Another may be depleted in Vitamins C and B12, copper and selenium. A third may be consuming sub-optimal amounts of isoflavones and lycopene.

We do not have the resources to analyse millions of individual cases, but in any case there is no need to do so. The vast majority of people are consuming sub-optimal amounts of most micro-nutrients; and most of the micro-nutrients concerned are very safe. So if we wish to improve the general health of the nation, a comprehensive and universal baseline programme of micro-nutrient support should be the most cost-effective and safest way of achieving this.

In most cases, therefore, wide-spectrum nutritional programmes are recommended. But equally, it is apparent that as we age, bottlenecks form in key metabolic pathways, and can drive the metabolic rundown to certain types of illness.

By-passing the bottleneck may be enough to increase the rate of regeneration to the point where it outstrips the forces of decay, and the disease can be slowed, stopped or forced into reverse. This may be true, for example, in the treatment of osteoarthritis with glucosamine. So to a 'baseline' of wide-spectrum nutrients you may need to add one or two specialist nutrients for specific conditions – as well as a physician's support, of course.

The twin themes of restoring metabolic balance, and overcoming metabolic bottlenecks, recur throughout the book. The nutritional strategies outlined here represent the next wave of health care; no magic bullets, and no friendly fire either, but a health care based on the gentle correction of multiple metabolic imbalance with comprehensive nutritional support, and a health care which, I believe, will make the degenerative diseases a rarity.

Complex data – simple solutions

The sheer complexity of nutrition explains why there have been so many conflicting trial results. For example, although several studies showed that Vitamins C and E protect against heart attacks, other trials found no such effect. One explanation is that different populations have different nutritional baselines.

In populations with a low anti-oxidant intake, Vitamin C and E supplements may confer some protection; but in areas such as the Mediterranean countries, where anti-oxidant intakes are already high, they can have little additional effect. Similarly, supplements of 200mcg selenium appear to be highly cancer-protective in the American Mid-West, where dietary selenium is very low (See Chapter 13, Cancer); but the same supplement will have no effect in Greenland, where the diet already contains 1600mcg selenium a day.

Scientists are used to the idea that most drugs are equally effective (or ineffective) wherever they are used. But as you can see, nutritional intervention with a single micro-nutrient may have different effects in different populations. Nonetheless, because of their superior safety, almost all micro-nutrients can be given to almost all people. And if a nutritional programme is sufficiently comprehensive, it will remedy whatever dietary defects the individual or population may have.

Completing the nutritional jigsaw

The nutrients you need provide a series of overlapping lines of defence. Each defence affords some protection, but unless you have *all* the defences in place you remain vulnerable. The nutrients can also be visualised as pieces in a jigsaw. To complete the big picture all the pieces need to be in place. Broadly, there are nine pieces in the nutritional jigsaw.

1 The first piece is composed of anti-oxidants to protect your cells against free radical damage (see Chapter 4).

Vitamin C and Vitamin E are two of the best known, but what are the optimum levels of these and other anti-oxidant nutrients? Research is now providing some clear answers.

Studies suggest that a significantly protective dose of Vitamin E may be around the 100mg mark; but the Recommended Daily Allowance (RDA) for Vitamin E is only 10mg; and a typical Western intake is just 9.3mg!

Various lines of evidence suggest the optimal dose of Vitamin C is between 500 and 1000mg a day; the RDA for Vitamin C is 60mg; the average person's intake of Vitamin C is 58mg.

Shields, not bullets

Pharmaceutical-style research is not the best way to analyse nutritional problems. For example, though homocysteine is a risk factor for heart disease (see Chapter 11), studies show that low folate intake (which contributes to high homocysteine) is not.

Pharmaceutical scientists conclude that folate cannot be very protective. But the reality is more complex; a person low in folate may be high in other protective factors such as fish oil, flavonoids or other anti-oxidants – and vice versa.

In other words, there is little point in looking for single causes for the degenerative diseases, or for 'magic bullet' cures. There are many risk factors, and a corresponding number of protective micro-nutrients. This is why nutraceutical programmes can succeed where drugs fail, by remedying the many underlying causes of disease rather than merely suppressing individual symptoms.

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Never too late!!

The focus of these nine lines of defence, or nine pieces in the jigsaw – and indeed the whole book – is on **preventing** degenerative disease in the first place.

However, the same basic nine-step nutritional plan is valid even for people who have already started to exhibit some symptoms of incipient disease. In addition to a physician's care, you will find advice on additional nutritional strategies for specific diseases in later chapters.



There is evidence that smokers should **not** supplement with beta carotene, or with other carotenoids unless combined with Vitamin C, see page 182.

The average dietary intake of these nutrients, therefore, is lower than the RDAs, even though the RDAs are much lower than optimum – because RDAs are designed to prevent deficiency symptoms from appearing, not to optimise health.

Since most vitamin and mineral supplements on the market use the RDAs as their baseline, it follows that most supplements are inadequate. It makes no sense to take less than the therapeutic dose.

Although Vitamins C and E are important, many other anti-oxidants are every bit as powerful and, when combined, have additive and complementary protective effects. The flavonoids, the carotenoids and the mineral selenium are good examples.

The average intake of selenium is 35mcg and, although there is no official UK RDA, the optimum intake is likely to be 120-200mcg. This depletion is serious because selenium has a vital role in protecting against heart disease, stroke, and cancer. Flavonoids have a similar function; yet the average intake of these nutrients is 140mg, there is as yet no RDA and optimal daily intake is probably around 500-1000mg.

You not only need the right nutrients, you also need them in the right amounts – and in a form that the body can most easily absorb and use. So as the book progresses, we will use the conclusions from thousands of studies to try and define the ideal nutrients and their optimum levels.

2

The second piece in the jigsaw consists of the carotenoids.

Carotenoids, such as beta carotene, are derived from vegetables and fruits, and have anti-oxidant and anti-cancer properties. Their RDAs have not yet been determined.

A less well known carotenoid, lycopene, is a powerful cardio-protectant and anti-cancer agent. A third, cryptoxanthin, appears to reduce the risk of cervical cancer. A fourth, lutein, appears to confer very significant protection against age-related blindness; a fifth, astaxanthin, may improve gastric function and fertility.

The available data indicates that intakes of all these carotenoids are much lower in the average diet than the

probable optimum intakes. (The typical diet provides just 5mg of carotenoids a day against an optimum of 15 to 20mg.)

3 The essential Omega 3 oils found in oily fish and certain plant oils provide a third piece.

These oils protect against heart disease, and have a role to play in defending against inflammatory conditions like asthma and arthritis. The average person's intake of Omega 3 is about 150mg a day; far below the level that the UK Government is currently considering recommending, which is 350mg a day.

4 The fourth piece in the puzzle is composed of the flavonoids.

Flavonoids (such as grapeseed extract, green tea extract or pycnogenol) are powerful anti-inflammatory agents and are defensive against heart disease, cancer, and inflammatory conditions such as asthma and arthritis. They are also anti-ageing compounds for skin. At present there is no RDA.

5 Recently we have discovered a related puzzle piece – isoflavones.

Isoflavones (like genistein), are found in soy, and have remarkable defensive powers against cancer. They can not only force cancerous cells to revert to normal, but can also help choke off the blood supply to emerging tumours. In addition, they have an important role to play in minimising problems linked to the menopause.

While there isn't as yet an RDA, the average daily intake of isoflavones in the West is as low as 5mg. The level that I recommend (40mg) will provide you with an intake similar to the diet eaten in countries like Korea or Japan, where the rates of some of the major cancers are very much lower than in the (non soy-eating) West.

6 The sixth piece consists of methyl groups; supplied by folic acid, Vitamin B6 and the 'quasi-vitamin' betaine.

Methyl groups lower levels of a toxic amino acid (homocysteine) that can build up in the body, and which is a direct cause of heart disease and is implicated in Alzheimer's.

Methyl groups, at the correct levels, also increase the body's resistance to stress, toxins, carcinogens and infection; and enhance liver and kidney function (see Chapter 11).

Overlapping functions

The concept of a nutritional jigsaw simplifies a quite complex subject and makes it easier to understand.

It also underlines the fact that there is an inter-relationship between the pieces – they don't act independently, but each contribute to the whole.

ORAC Units

The US Government, working with the world-famous Tuft's University in Boston, measure the anti-oxidant protection provided by foodstuffs in ORACs (Oxygen Radical Absorbance Capacity)^(2,3).

Typical diets provide 1400-1500 ORACs a day; optimal intakes are reckoned to be between 3-5,000 ORACs. To achieve that, you would need to eat 10-15 servings of fruits and vegetables a day – or add a high ORAC scoring supplement to your diet (see page 345).

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While as yet there is no RDA, an estimated 95% of people are depleted in methyl groups.



The seventh piece in the jigsaw is formed by another new class of nutrients called pre-biotics or pre-biotic fibres.

Pre-biotics include FOS (Fructo-Oligo-Saccharide) and the resistant starches, members of a family of non-digestible fibres found in chicory, leeks, onions and some other vegetables and grains.

These pre-biotics protect against bowel and colon cancers, and probably liver and breast cancers also. They also help to normalise bowel function.

The estimated average intake of this type of non-digestible fibre is about 3g a day. You need 8g or more, but the RDA has not yet been agreed.



The eighth piece consists of a broad spectrum A-Z type multi-vitamin and mineral supplement.

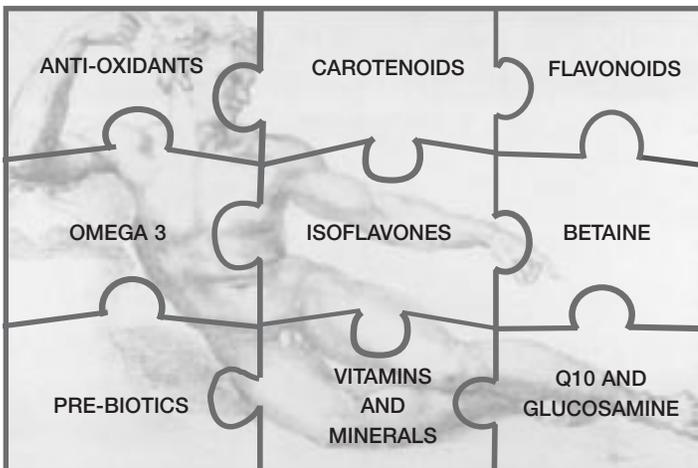
Sadly, most A-Z supplements are based on Recommended Daily Amounts (RDAs) which desperately need updating. Optimal levels for some of the vitamins and minerals are much higher.



The ninth piece consists of Co-enzyme Q10 and glucosamine.

These are nutrients which maintain the inner and outer health of the trillions of cells that make up the body.

Q10 supports the mitochondria (the vital 'energy factories' inside every body cell) and has an important role in maintaining a healthy heart.



You can visualise the ideal nutritional defence plan as interlocking pieces in a jigsaw. Any one on its own has a value, but comprehensive protection comes only when all the pieces are securely in place.

Glucosamine strengthens the connective tissues in the body and helps protect joints and skin.

Both nutrients are important in delaying the process of ageing by protecting the cellular structures of the body.

Wellness

The basic source of the nine pieces in the nutritional jigsaw must be a healthy diet. So start with a diet rich in fruits, vegetables, soy, and oily fish, plus herbs like thyme, rosemary and oregano, and spices like turmeric, garlic and ginger.

But even a healthy diet needs a core of supplements in order to reach the **optimum** nutritional levels that research shows can provide a real defence against degenerative disease. So add a well-designed supplement programme that ensures that all nine pieces of the nutritional jigsaw are in place – in the optimum amounts.

Top off with some moderate exercise, stop smoking (if you haven't already done so), and now your repair mechanisms should be working as they were designed to do, to keep you well.

The result is a programme that should help protect against almost all of the major diseases, including cancer, stroke, heart disease, Alzheimer's, osteoporosis and diabetes.

The focus is on maintaining 'wellness' rather than treating illness.

The aim of this book is to close hospitals, and put doctors out of work – by helping you live a healthier and longer life!

Website update

I have tried to incorporate the very latest research on nutrition and health available at the date of publication.

Inevitably, however, important new data is appearing all the time. Consequently, I am making free updates available on the following website:

www.healthdefence.com

American readers can go to:

www.healthdefence.com