

▶ **Read the contents list on your pack of nutritional supplements very carefully**

▶ **In many brands the levels of most nutrients are well below optimum – and mainly listed to impress the buyer**

▶ **Other brands contain cheaper forms of the nutrients which are poorly absorbed by the body**

▶ **In most cases the way the vitamins and minerals are combined is far from ideal**

Chapter 22

Selecting the right supplements –

Suggested Optimum Daily Amounts

For anyone who wishes to use nutraceuticals or functional foods to protect their health or to treat a medical condition, this book aims to provide a guide to the best micro-nutrients and phyto-chemicals currently available.

Identifying the appropriate ingredients, however, is only half the battle; it is equally important to take them in the form that the body can most effectively absorb. **And** at the optimum levels. **And** to combine them rationally.

The list on page 348 is my best estimate, based on the literature, of the dose levels of the key micro-nutrients for prophylactic use; ie for the healthy who wish to stay healthy.

It is outside the scope of this book to offer precise nutritional recipes for existing illness, although it is generally true that in nutraceutical medicine, the levels of micro-nutrients required to cure a problem are often higher dose versions of the levels for preventative health care.

Individual nutritional needs may differ depending on levels of activity, smoking habits, diet, sex, age and other factors. For that reason, the doses given represent a mid-point, suitable for the great majority of people. The list will be updated as further information becomes available.

In the appendices I have recommended a specific form for certain micro-nutrients, where there is evidence that this form is more bio-available, ie better absorbed by the body. For example, some minerals may be better absorbed as chelates (ie bound with

Caveat emptor!

Over 40 per cent of British adults now take supplements. Sadly, the great majority are **not** receiving the health benefits they are hoping for – as the simple ORAC test quoted on page 345 makes clear.

a protein). Some vitamins are more efficiently absorbed when pre-dissolved in edible oil. Others (generally the water-soluble vitamins) are better given as sustained release preparations. If these are not available, divided doses taken morning and night are an alternative. Isoflavones are better absorbed as aglycones (ie stripped of sugar molecules), and so on.

Beware of the quality of some supplements

Sadly, too many vitamin and mineral supplements still contain the wrong micro-nutrients, in the wrong doses and in the wrong combinations. Until national quality standards can be set in place to protect the consumer, you will have to check the ingredients in your supplement very carefully before you can be sure whether or not it can deliver on its promises.

Plenty of multi-vitamin/mineral tablets contain iron in the form of iron oxide (otherwise known as rust). Iron in this form is not recommended. It is not well absorbed into the body, and by generating free radicals in the gut, may actually harm the gastrointestinal tract. In fact, many of the cheaper mineral salts used by manufacturers to cut costs are so poorly absorbed that they simply pass right through you.

Other micro-nutrient formulations are nearly as bad. Check, for example, the percentage of Omega 3 or 6 essential fatty acids in your fish oil or evening primrose oil capsules. This can be surprisingly low. (Thus a 1000mg fish oil capsule may have as little as 200mg of Omega 3 as EPA/DHA.) To make matters worse, if they are the cheaper esters, or free acids rather than triglycerides, these will be less well absorbed – so you will need more of them.

High-dose poly-unsaturate formulations without an accompanying hefty dose of an appropriate anti-oxidant mix will increase your free radical load, and can eventually cause serious health problems – yet there are still plenty of these on sale.

Q10 tablets are cheaper than Q10 pre-dissolved in edible oil in capsules, and may look a better buy; but pre-dissolved Q10 is so much better absorbed that the capsules generally provide better value for money.



WARNING

Check the label of any supplement against the recommended amounts provided on page 348.

Too often manufacturers include too few of the important nutrients, at too low levels, and in cheap, poorly absorbed forms.

For example, I submitted three of the leading UK multi-vitamin and mineral supplement brands to ORAC testing, which measures their capacity to absorb free radicals.

They scored 111, 117 and 137 on the ORAC scale respectively. In contrast five servings of fruit or vegetables a day should produce an average of 1,400 ORAC units.

My own recommended range and levels of nutrients in an optimum supplement produce an ORAC score of over 4,500.

DIETS WHICH PROMOTE HEALTH: **SODAs**

Finally, extracts can be confusing. Thus 20mg of soy extract sounds impressive on the pack, but, even if the percentage of isoflavones is as high as 40 per cent, you will only be getting 8mg of the actual soy isoflavones themselves – against the 40mg level I think you may need.

Unless you know about micro-nutrients, it is probably better to stick with the brands used by professional nutritionists. These may be more expensive, but it is often worth paying a little more to ensure quality, and value for money.

Amino Acids

The essential amino acids are not included in my recommended daily supplement, as amino acid depletion is uncommon in anyone eating a diet containing reasonable amounts of animal or soy protein, micro-algae or a balanced intake of vegetables.

Many amino acids can, however, be used as therapeutic tools, and a section on amino acid therapy may be included in the next edition.

Inadequate Amounts

My biggest complaint about many supplement brands is that they use phrases like ‘Mega Dose’, or ‘High Strength’ misleadingly.

Look at the pack and you will see a long and impressive list of ingredients. Check more carefully, however, and you find that levels of many of the more expensive ingredients (which are often among the most important nutrients) are token amounts designed to impress by merely being listed on the pack.

Claiming “100% of all the RDAs” is also misleading. Some nutrients, like Vitamins C and E, need much higher levels to be effective; and many micro-nutrients do not yet have an RDA!

One well-known ‘Ultra’ formula includes just 0.6mg of beta carotene – whereas the minimum level that will make a difference to your health is probably 10 times that dose. And it includes none of the other carotenoids like lycopene or lutein (probably because they are expensive).

Another ‘Super’ formula did include the other carotenoids but at levels of about 20mcg (sometimes written μg). I would want to see a supplement containing at least 15mg of carotenoids. Since a milligram is 1000 micrograms, this ‘Super’ formula contains about 1000 times less of the other carotenoids than research indicates is really effective. [It also contained about 10mg of Vitamin E as opposed to the 100mg (or 149IU) that evidence shows to be cardio-protective.]

I am aware that the shelves of the typical health food store and the pack declarations on the typical supplement can be very confusing.

A major motivation in writing this book has been to simplify your task in choosing a diet and in selecting supplements that really will improve your health.

The anti-ageing supplement

Research indicates that the ideal diet designed to protect against cancer, stroke, heart disease, Alzheimer's and ageing is fundamentally the same. This is the basis of my recommended supplement.

The list of nutrients overleaf includes a column headed 'recommended supplement level', plus a comparison with the current RDAs, the average person's daily intake and the upper safe levels for supplements. The recommended levels should help protect against most of the degenerative diseases, as you will see from page 349. Do not exceed them without professional advice.

Important

The recommended doses should not be exceeded without individual nutritional advice.

Pregnant women and patients on medication should consult their physicians before self-treating.

VARYING REQUIREMENTS

Higher risk groups such as smokers, drinkers, athletes, diabetics and sun-worshippers should opt for upper range doses of the anti-oxidants, as their requirements are increased.

Sunbathers should also choose higher doses of the B vitamins, as many of these are degraded by the action of sunlight on skin, and higher doses of carotenoids and flavonoids to protect their skins from UV damage.

My recommended doses of nutrients can be taken by adults of all ages. The only exception is iron. Teenagers and pre-menopausal women are frequently in need of an iron supplement and I recommend 10mg a day.

Men and post-menopausal women don't usually need an iron supplement, so it is not recommended unless iron deficiency anaemia has been diagnosed.

Additional supplements are not needed and are not recommended, unless suggested elsewhere in this book for a particular therapeutic purpose.

As a general rule supplements should be taken with meals, to facilitate absorption and minimise the risk of gastric irritation.

DIETS WHICH PROMOTE HEALTH: SODAs

Recommended supplement levels, RDAs and average current daily intakes

	Daily intake*	My recommended supplement level	Upper safe limit for supplementation**	RDA	
				EU	US***
Vitamin A	1012mcg	800mcg	1500mcg	800mcg	700/900mcg
Vitamin C	58mg	500mg	1000mg	60mg	75/90mg
Vitamin D	2.9mcg	10mcg	200mcg	5mcg	5mcg
Vitamin E (mixed tocopherols)	9.3 mg	100mg	540mg	10mg	15mg
Vitamin K	45mcg	50mcg	N.E.	N.A.	90/20mcg
Vitamin B1	1.7mg	7.5mg	100mg	1.4mg	1.1/1.2mg
Vitamin B2	2.0mg	7.5mg	40mg	1.6mg	1.1/1.3mg
Niacin	39mg	15mg	17mg	18mg	14/16mg
Pantothenic acid	5mg	15mg	200mg	6mg	5mg
Vitamin B6	2.4mg	7.5mg	10mg	2.0mg	1.3mg
Folic acid	252mcg	200mcg	1000mcg	200mcg	400mcg
Vitamin B12	7.2mcg	6.75mcg	2000mcg	1mcg	2.4mcg
Biotin	30mcg	150mcg	900mcg	150mcg	30mcg
Selenium	35mcg	150mcg	350mcg	75mcg	55mcg
Zinc	11.1mg	10mg	25mg	15mg	8/11mg
Calcium	917mg	100-150mg	1500mg	800mg	1000mg
Magnesium	308mg	100-120mg	400mg	300mg	320/420mg
Chromium	30mcg	120mcg	10000mcg	125mcg	25/35mg
Copper	1.5mg	1mg	1mg	2.5mg	0.9mg
Manganese	4.6mg	2mg	4mg	5mg	1.8/2.3mg
Iodine	180mcg	100mcg	500mcg	200mcg	150mcg
Molybdenum	50mcg	100mcg	200mcg****	N.A.	45mcg
Carotenoids					
Beta carotene	1.9mg	7mg	7mg	N.A.	N.A.
Lutein	1.5mg	6mg	N.E.	N.A.	N.A.
Lycopene	2.5mg	5mg	N.E.	N.A.	N.A.
Zeaxanthin	75mcg	100mcg	N.E.	N.A.	N.A.
Flavonoids					
Oligoproanthocyanidins	35mg	100mg	N.E.	N.A.	N.A.
Polyphenol complex	105mg	150mg	N.E.	N.A.	N.A.
Betaine	20-25mg	450mg	N.E.	N.A.	N.A.
Isoflavones	5mg	40mg	100mg****	N.A.	N.A.
Omega 3 (EPA/DHA)	150mg	600mg	N.E.	N.A.	N.A.
Resistant starches	1-3g	8-10g	N.E.	N.A.	N.A.
Co-Q10	10mg	30-60mg	N.E.	N.A.	N.A.
Glucosamine	N.A.	500mg	N.E.	N.A.	N.A.

N.A. = Not available. N.E. = Not established

* Sources: Council For Responsible Nutrition and trade sources

** Source: Food Standards Agency 2003 and ref.(1)

*** Some US RDAs are different for women and men. In these cases that for women is given first.

****Source: Council for Responsible Nutrition

The protective roles of the main nutrient groups

	<i>Anti-oxidants vitamins and minerals</i>	<i>Vitamin E</i>	<i>Carotenoids lycopene, beta and alpha carotene, lutein, zeaxanthin</i>	<i>Flavonoids grapeseed, OPCs, green tea, red wine</i>	<i>Isoflavones genistein, daidzein</i>	<i>Omega 3</i>	<i>Betaine</i>	<i>Q10</i>	<i>Magnesium/calcium Vitamin D</i>	<i>Glucosamine</i>	<i>Pre-biotics</i>
Heart disease	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Stroke	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓
Cancer	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓
Alzheimer's / Mental decline	✓	✓	?	✓	✓	✓	✓	?			?
Ageing	✓	✓	✓	✓	?	✓	✓	✓		✓	✓
Diabetes	✓	✓	?	✓		?					✓
Arthritis	✓	✓	?	✓		✓				✓	
Osteoporosis	?		✓	✓	✓			✓	✓	?	
Asthma	✓	?	✓	✓		✓	?	?	✓		
Age-related eye disease (macular degeneration)	✓	?	✓	✓			?				
Skin ageing	✓	✓	✓	✓	✓	?	?	?		✓	

Key: ✓ = strong protective effect ✓ = a degree of protection ? = possible protective effect

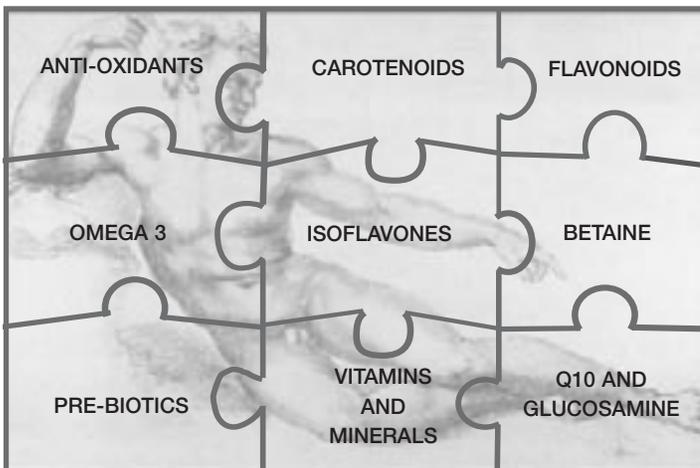
Note: The strength of effectiveness of protection will vary between nutrient groups and individuals. There is also often a synergy between the different nutrient groups which affects overall protection levels.

Risk Reduction

At the beginning of the book I explained that I believe you can reduce your risk of almost all the degenerative diseases through healthy eating, supplemented by a particular combination of nutrients. I then likened those groups of nutrients to nine pieces of a jigsaw, which all have to be in place to offer comprehensive protection.

The previous two pages specify which nutrients and at what levels. In the appendix on page 354 I have suggested the best **form** of each nutrient. This information is the basis for creating all nine pieces in the nutritional big picture:

- Vitamins and minerals – at levels that are optimum rather than simply RDAs to support the metabolic and immune systems.
- Anti-oxidants – including Vitamins C and E, plus the anti-oxidant minerals to cut the risk of heart disease, cancer and Alzheimer's.
- Carotenoids – beta carotene, lycopene and lutein to cut the risk of many cancers and heart disease, and protect the eyes, skin, etc.
- Flavonoids – as grapeseed/bilberry extract and green tea which act as additional anti-oxidants and protect not only against heart disease and cancer but also against asthma and arthritis.



- Omega 3 fish oil – for added cardio-protective function and for its role in defending against arthritis and asthma.

- Soy isoflavones – genistein and daidzein to cut cancer risks.

- Betaine – which helps protect the heart, liver, nervous and immune systems.

- CoQ10 and Glucosamine – which support the mitochondria and connective tissue (skin and joints) respectively.
- Pre-biotics – which help protect against bowel, liver and, possibly, breast cancers.

Tangible benefits

Such a combination of nutrients is not the cheapest option – but in health, prevention is definitely better (and cheaper!) than cure. To wait until a health problem manifests itself is to wait too long.

I am very aware that taking supplements can seem like an act of faith. This is why I have not hesitated to give you the research on which I base my conclusions, even though the knowledge base is large and complex.

However for at least one benefit – the anti-oxidant strength of nutritional supplements – science now offers an accurate measurement. The anti-oxidant capacity of my recommended combination of supplements was measured by the ORAC method (as described on page 345), and produced an ORAC score of over 4,500!

To put that into context, five servings of fruit and vegetables deliver an average ORAC score of 1,400, while, as you have seen, the average leading multi-vitamin and mineral formulae at 100% of the RDAs, deliver an average ORAC score of only 122!

It's true that a truly comprehensive nutritional supplement will cost more than most people are used to paying for their vitamins and minerals. However, it is the best form of 'health insurance' I know.

As we get older we begin to plan more for our future – for example taking out a pension. But it doesn't make sense to pay into a pension plan without also taking the 'nutritional insurance' to live out a maximum healthy life span.

Longevity by itself is an over-simple objective. It is the twin objectives of longevity with a high quality of life that most of us seek. I trust this will be a significant contribution to 'quality longevity' for you.

Keep up to date through the internet

The internet allows instant and inexpensive communication. I shall always be pleased to hear from any reader who has comments, criticisms or new information to offer.

Moreover should later research indicate any modifications in my recommended nutrients, I will post them on www.healthdefence.com or, if changes in levels are indicated, I will post them, on www.drpaulclayton.com.