

## The antioxidants

Vitamin tablets are the most popular form of supplement. In addition to their traditional roles, A, C and E are now also being marketed as antioxidants, along with the minerals selenium and zinc. In other words, they are being sold for their ability to convert dangerous free oxygen radicals – highly active atoms or groups of atoms – into harmless compounds.

There is evidence to suggest that antioxidants can guard against cancer, by preventing free radicals from causing damage to cells and DNA in the body. Some studies have shown that there is a lower risk of cancer of the bladder, lung, cervix and stomach when the dietary intake contains high levels of carotene-rich dark green leafy or yellow/orange vegetables. One study in China showed a significant reduction of risk of cancer, especially of the stomach, by combining doses of beta-carotene – which is converted into vitamin A – with vitamin E and selenium at quantities one to two times greater than the Reference Nutrient Intake. (This newly coined phrase replaces the

traditional Recommended Daily Allowance, and describes what is considered sufficient for up to 97 per cent of the population.) Cancer sufferers have been found to have lower than normal levels of carotene in their blood so it seems logical that this could be compensated for through diet.

In some circumstances not all antioxidants are beneficial – some actually hinder good health. A study on lung cancer prevention carried out on male smokers in Finland found that the men who received beta-carotene actually had a slightly higher incidence of cancer. Some scientists have also suggested that the benefits for cancer prevention will only be derived from vitamins occurring naturally in food and will not apply when the vitamins are taken in supplement form. With such conflicting reports the Department of Health feels that there is not yet sufficient evidence to support antioxidants as cancer-

## Folic acid protects against neural tube defects in the first months of pregnancy

repeatedly. This means that a simple reading of the label will not provide any guide to what the supplement might achieve. Fortunately, a considerable amount of research has now been conducted in this area. In an attempt to demystify the topic, we looked at the latest clinical trials to answer the key questions about nutritional supplements: do they work? And exactly what can they do for you?

preventing – although the vitamin companies are convinced.

Several projects have examined the impact of vitamins on cardiovascular disease. The largest of these was the Nurses Health Study of 87,000 healthy American nurses, which observed that the risk of a first heart attack was cut by a third by taking vitamin E. Beta-carotene had a slightly lower beneficial impact, and vitamin C >

The vitamin market in Britain is booming. Consumers are spending up to £80 million per year on an alphabet soup of vitamin pills and potions. Other supplements, such as evening primrose oil and ginseng, bring in another £125 million. It's not a new concept – Sanatogen started producing its High-Protein Powder over 90 years ago – but with expansion grows confusion. Faced with a health-food-shop or supermarket shelf full of such products, you could be forgiven for feeling completely bewildered rather than inspired to boost your intake.

Anyway, is there any real evidence that we actually need these increasingly expensive supplements? Many nutritionists still argue that we can get all the vitamins and minerals we need from a healthy, balanced diet. The World Health Organisation, for example, recommends that to be properly nourished we should eat at least five portions of fresh fruit and vegetables per day – that doesn't include potatoes, by the way – and that while fruit and vegetables along with wholegrain cereals should form the greater part of our food intake, we should also

## Vitamins: should we swallow them?

**Dr John Gilbody and Alexia Best look at what works – and what doesn't**

have healthy helpings from all the major food groups (protein, fat, carbohydrate and fibre). This is fine if you're very conscious of your diet, but if you're busy you might find it difficult to squeeze that much healthiness into 16 waking hours; most of us occasionally want to include comfort food; and if you're dieting the amount you need to eat to get your full nutritional quota can look like the proverbial EC food mountain.

So are supplements the solution? With Boots currently stocking over 250 different types, and a third of American adults gulping down at least one vitamin product, there are clearly a lot of people who think so. Linda Evangelista, for example, boosts her low-calorie diet with a wide range of vitamins and supplements, including the antioxidants beta-carotene and vitamins C and E – and it obviously works for her. The British

had none. Maximum vitamin E benefit came at doses ten times higher than the US recommended allowance of 8mg a day. The vitamin E bonus is supported by the observable "fruit and vegetable gradient" of mainland Europe: mortality rates decrease and vitamin E blood levels increase as one descends from northern to southern Europe, where the diet is low in saturated fats and rich in fruit and vegetables.

In addition to the advantages of ingesting antioxidants, their use on the skin has been hailed as a major breakthrough by the cosmetics giants, because they believe they also protect the skin against damage by pollution and UV rays.

## Garlic and the allium vegetables

One of the main reasons why the French have a lower rate of heart disease than their British neighbours is thought to be their high consumption of vegetables of the allium family (garlic, onions, chives, etc). Garlic reduces levels of blood lipids, which lead to cholesterol and arterial disease. A summary of 16 recent studies has shown that garlic taken either in supplement form (600mg daily) or fresh (10 to 20g daily) can reduce cholesterol levels by up to 15 per cent. A study carried out in the Netherlands found that a diet rich in onions helped to prevent lung cancer, though garlic – which has proved effective against the development of stomach cancer in Chinese and Italian studies – had no effect.

## Cod liver oil

Consumption of oily fish has been convincingly shown to reduce levels of heart disease. The Eskimos, whose diet has a high proportion of fats from fish, have the lowest rate of heart disease in the world. Cod liver oil is now available in capsule form, making it more palatable, and along with the newly recognised Omega-3 fatty acids contained in fish oils, can significantly reduce blood triglyceride levels – yet another cause of arterial disease – when taken daily. But with the contamination of fish from toxic waste and pollution, Eskimos are now showing higher rates of cancer than ever before. An alarming analysis carried out by Greenpeace found that nine out of ten top UK brands of cod liver contained toxic chemicals.

## Ginseng

One of the most ancient remedies from the Far East, ginseng is still an unknown quantity. Some evidence has suggested that it has many benefits – ranging

from increasing stamina in athletes and concentration in wireless operators, to counteracting aggressive behaviour and blood-clotting in animals. This evidence is, however, very patchy, and there is considerable dispute over optimum dosage.

## Evening primrose oil

Once again, there are mixed reports as to what this supplement can achieve. The seeds of the

## Garlic can reduce cholesterol levels by up to 15 per cent

evening primrose contain a jelly-like substance called gamolenic acid (GLA). However, most plant oils, such as sunflower, are converted into GLA by the body anyway. Nevertheless many people feel that it improves skin and hair texture, strengthens nails and helps with PMT. Anecdotal evidence suggests that it can strengthen the body generally, improve bone density and even cure certain illnesses, but little independent medical research has taken place to support the claims. Scientists at Keele University tested gamolenic acid and vitamin E on menopausal women suffering from hot flushes; it had no discernible effect. Starflower oil has much more GLA than evening primrose oil, but again, there is no evidence that this is a bonus.

## Dietary fibre

Fibre can greatly reduce the incidence both of colonic and rectal cancer, as well as reducing levels of lipids in the blood to work against heart disease. However, while naturally occurring fibre in the diet, mainly in fresh fruit and vegetables rather than bran, has great benefits, fibre supplements are of little or no use to the average healthy person. They do not aid weight loss, and only benefit the human constitution as a short-term measure.

## Phytonutrients

The latest vaunted health "miracle" from the States, phytonutrients claim to be fresh vegetables in tablet form. Press coverage claims that phytonutrients will prevent cancer better than vitamins, but this remains unsubstantiated. In fact, the most important phytonutrients occurring naturally are probably vitamin E and carotene (see section on antioxidants).

## Seaweeds

There is no doubt that various types of seaweed are rich in nutrients and provide a highly beneficial food source, as the Japanese well know. The problem is that you need to eat it

in large quantities, and anyway most Westerners find it unpalatable. The product claims are not unreasonable, but the benefits are probably little different to those of a simple multivitamin tablet.

## Folic acid

There are now a substantial number of studies which indicate that a supplement containing at least 400mcg of folic acid should be taken by anyone planning pregnancy, and continued for

at least the first three months of pregnancy to provide protection against such neural tube defects as spina bifida. Studies have also found that high homocystine levels in men are associated with greater risks of heart attack. The presence of homocystine is usually due to a genetic disorder but levels rise and fall in accordance with folate levels – low, stable, safe levels are achieved only with an intake of 400mcg of folic acid a day or more. Some foods such as Kellogg's breakfast cereals are fortified with folic acid, and varying amounts are found in fresh fruit and vegetables, especially when not overcooked. Supplements are an extremely good and reliable source.

## Calcium

The latest government campaign alerting us to the dangers of osteoporosis has probably had every woman old enough to read a newspaper reaching for a pint of milk, along with every calcium supplement on the market. But for some it's too late. Bone density peaks at 30 years of age and the bone-building material calcium is absorbed most effectively between the ages of 15 and 25. It is therefore of prime importance that girls have a high intake of calcium in their late teens and early twenties, whether it be via food or supplements. For anyone over the threshold, weight-bearing exercise such as skipping can improve bone density, and for post-menopausal women there is the option of HRT.

## Royal jelly

Used for centuries in Chinese medicine, royal jelly has been found to contain 10 vitamins, six minerals and a clutch of amino acids – although four per cent of its content has yet to be identified. It is produced by worker bees for consumption by the queen bee, but there is no independent medical evidence in support of its use as a nutritional supplement for humans. As with evening primrose oil people have found it useful, especially when feeling generally run-down. Tests in Japan have also found that it contains an antibacterial protein and that it promoted wound-healing in diabetic rats. ■

Further reading: "Making Sense of Vitamins and Minerals", £1.25, at Boots

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Boots Antioxidants (including vitamins C, E, D and selenium), £5.49 for 60. Seven Seas One-A-Day Antioxidant Vitamin E 400iu. (contains 269mg per capsule), £4.99 for 60. Healthcrafts Antioxidant Multi Vitamins & Minerals, £2.99 for 30. Kwai Once-A-Day Chinese Garlic, £4.95 for 30. Boots Evening Primrose Oil Pastilles, £3.49 for 30. Efamol Original Evening Primrose Oil Capsules, £9.25 for 90. Sanatogen Pronatal (800mcg folic acid plus multivitamins and minerals), £4.79 for 60. Boots Chewable Calcium and Vitamin D Tablets, £3.09 for 90. Regina Fresh Royal Jelly Capsules, £13.25 for 30. ■

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