

Synergy

Omega 3s - the wonder brain food

factfile Name: **Omega 3s**

What is it? Omega 3s are a group of fatty acids which include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA). These fatty acids are important to human health. **Source:** A good source of EPA and DHA is oily fish such as salmon, mackerel and tuna.

Benefits: Improved cognitive performance, concentration and co-ordination; reduced stress and calming effect; cardiovascular benefits.

Applications: Useful for all children of any age, particularly those with learning, concentration or behavioural problems and for those taking exams. Adults of any age can benefit from the positive mental effects – including reduced stress – as well as the improvements in heart health.

Fish oils have become increasingly popular supplements following a series of high-profile studies and much exposure in the media recently.

The key active ingredients in the oils – omega 3 essential fatty acids – are

crucial for good brain function and have been shown to help boost concentration and improve cognitive performance.

Omega 3s – and Omega 6s, also containing essential fatty acids – are especially useful in children with

behaviour problems such as attention deficit disorder. While mackerel, salmon, pilchards, sardines and herring are all good sources of omega 3s, many youngsters don't like these oily fish, so supplements can prove a valuable alternative.

Durham Education Authority association with Oxford University trialled eye q – a supplement containing fish oils and evening primrose oil – on 120 youngsters aged 6 to 12 with learning and behavioural conditions such as dyspraxia, ADHD and dyslexia.

After three months of the double-blind placebo controlled study, the pupils' performance was noticeably better, with a 40 per cent improvement in reading and spelling.

A similar and even more recent study in Australia – again involving omega 3s and evening primrose oil supplements – found that children with ADHD symptoms improved significantly, with attention and vocabulary both being boosted.

A total of 182 children aged 7-12 with learning and behaviour problems took part in the 30-week double-blind placebo-controlled clinical trial.

Natalie Sinn, lead researcher on the trial, says: "The results indicate that some children with ADHD or related learning and behavioural problems such as inattention, impulsivity and hyperactivity might benefit from taking omega 3 supplements, which if effective could provide a safe, healthy approach to treating ADHD."

This positive mental effect isn't limited to children either – omega 3s

can reduce tension, stress and anger in all age groups.

A study in France found that people given 7.2g of fish oil daily for three weeks had a reduction in the levels of the stress hormones, including adrenalin and cortisol.

The British Association of Anger Management has found that omega 3s can help improve our ability to cope in stressful situations so that we become less likely to snap at work, home or on the road.

Indeed the benefits of omega 3s go far beyond just learning and development – many people think these beneficial to virtually every system of the body in every age group.

For example, EFAs can help the heart and circulation – middle-aged people who take fish-oil supplements have healthier arteries and less heart disease. Extensive research by Professor Philip Calder, of the University of Southampton, has shown that omega 3 fatty acids reduce heart attacks and strokes by stabilising atherosclerotic plaques – the build up in arteries.

Research in Italy also found that omega 3s can dramatically reduce the risk of atrial fibrillation – abnormal heart rhythm – after coronary bypass surgery.

Dr Ann Walker, spokesperson for the Health Supplements Information Service, says: "Past and current research consistently reaffirms the health benefits of fish oils, from maintaining heart health and preventing heart disease to helping to regulate high blood pressure."

welcome

to the latest issue of Synergy

We aim to keep you right up to date with the latest news, views and research in the fast-moving world of natural health.

Our page one feature looks at the powerful role omega 3 essential fatty acids can play. It's a great ingredient and has proved especially useful for schoolchildren – trials have shown it can help mood, behaviour and concentration.

But omega 3s can also be useful to anyone of any age, with a useful calming effect and considerable cardiovascular benefits. On page two we explore how the effects of omega 3s can be further enhanced by combining them with another powerful ingredient, phosphatidylserine. The two together can be a great way to boost cognitive performance, particularly in older people.

We also take a look on page two at the latest developments surrounding the Food Supplements Directive, including details of the European Court of Justice decision in the summer.

Finally, everyone wants to look good, but our skin can sometimes let us down. A host of natural ingredients are great for staving off the worst effects of ageing, as our page three feature explains, keeping the skin in tip-top condition.

If you want to discuss any of the ingredients featured in Synergy, please do get in touch. Write to me with your comments on the topics covered and those you want to see discussed in the future. E-mail me at pPhillips@synpharma.co.uk.

Market opportunities

The global market opportunities for omega 3s is huge and are now just being discovered. Millions of children – of any age – can benefit, especially if they have existing behavioural or learning problems.

In the UK, consumer awareness of EFAs is higher than other parts of Europe or the US, but as further research and evidence is gathered, the rest of the world is beginning to take notice as well.

Omega 3s are especially useful when combined with other ingredients – for example omega 6 fatty acids (from evening primrose oil, borage oil and certain other seed oils), and, as we explore on page 2, phosphatidylserine, a powerful brain nutrient.

FSD

mixed reaction to European Court ruling

The European Court has approved legislation governing the sale of vitamins and minerals – but with changes that are being hailed as significant concessions by some in the industry.

Under the EU Food Supplements Directive (FSD), which came into effect on August 1, supplements will only be able to include vitamins and minerals taken from an approved list.

The directive provided a derogation system which would allow ingredients present on the market prior to 2003 to be used to the end of 2009 or until assessment is complete, on the condition that technical dossiers were submitted to governmental authorities for subsequent consideration by the European Food Safety Authority.

The directive was the subject of a legal challenge by the Alliance for Natural Health (ANH), the Health Food Manufacturers' Association (HFMA) and the National Association of Health Stores (NAHS).

The HFMA and the ANH argued the directive was an unlawful restriction on consumer freedom and freedom to trade, as well as imposing unnecessary burdens on British businesses.

After reviewing the evidence presented by both sides, European Court of Justice (ECJ) Advocate General Leendert Geelhoed said in April that the directive

infringed legal guidelines in his opinion, causing problems with "legal protection, legal certainty and sound administration".

British health food industry campaigners expected that this would heavily influence the EC judges and that the directive might be blocked. However the ECJ judges disagreed, ruling on July 12 that the directive was "properly founded" in EU law. They said that the restrictions were justified by the need to protect public health.

The judges also felt that the directive would create greater harmony and remove restrictions on the free trade of supplements in the European market.

However, in what is being seen as a victory in some quarters, the judges also acknowledged the advocate general's concerns and said that there must be clear procedures to allow substances to be added to the positive list based on scientific evidence.

They said that any refusal to add a product to the list must be open to challenge in the courts. None of the substances will be removed unless they are proved to be unsafe.

The ANH also said it interpreted the ban as applying only to synthetically produced supplements – and not to vitamins and minerals normally found in or consumed as part of the diet.

A spokesman for the ANH said: "Although the Directive was upheld, the ruling reduced its scope and greatly improved its clarity, so reducing obstacles to the health food industry. In particular the ruling will make it much easier to access the 'positive list' of allowed ingredients."

The Food Standards Agency said it knew of no supplements that would actually be banned under the EU directive. "The great majority of food supplements people take will continue to be freely available," an FSA spokesman said.

PS and Omega 3s – an ideal combination

In the last issue of Synergy we looked at phosphatidylserine, an amazing substance which can bring benefits to people at virtually any stage in life.

However, phosphatidylserine – or PS – can be even more useful when combined with other ingredients, bringing together a wider range of benefits to specifically target certain health situations.

On page one of this issue we have looked at the power and versatility of omega 3 essential fatty acids, as well as the compelling scientific evidence and trials supporting the supplement. Both PS and omega 3s are ideal partners, both working to support the brain and encourage better cognitive performance, mood, concentration and memory.

This combination is useful to virtually anyone of any age, from young children who can benefit from better performance and behaviour at school right up to the

very elderly who are looking to avoid the effects of ageing on the brain.

The market is huge. Millions of parents are looking to support their youngsters in any way possible, while the number of older people is soaring.

The elderly are set to make up a quarter of the European population by 2020, with the number of those aged 80 or over estimated to grow to 35 million in 2025. Younger people today are turning to products that can keep them in tip top condition as they grow older to give a better quality of life.

The physical combination of PS and omega 3 EFAs is perhaps the most obvious way of putting the two materials in one product. This straightforward solution is easily understood by the consumer and offers a powerful package of benefits.

One clinical study found that rats



given the two substances together had improved memory and learning and less depression and anxiety. The chemical effects on the rats' brains was found to be greater with both PS and omega 3s than giving either individually.

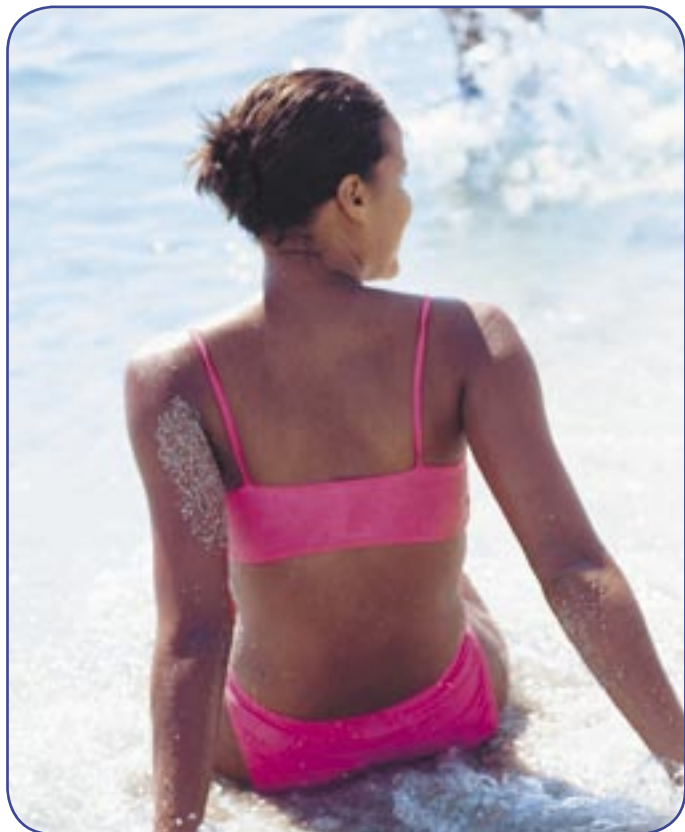
The second way of combining the benefits of PS and omega 3s is to attach the fatty acids to the backbone of the PS in the same compound. This is an efficient delivery system which mimics the structure of PS in the brain's grey matter. The PS brain lipid takes the omega 3s to the brain,

offering benefits that aren't available from just combining the two ingredients in one product. Both types of PS and omega 3 formulations are very flexible in terms of application and can be incorporated into a wide range of products including tablets, capsules, dietary supplements and functional foods such as nutrition bars.

SynPharma can supply PS and omega 3 raw materials combined in either way or separately, as well as in finished product formats.

Please contact us for further details.

Facing the world – beauty from within



Everyone wants clear, young-looking skin and products that promise this healthcare Holy Grail are in great demand by consumers.

Millions of people – mostly women but increasingly men as well – spend large sums on cosmetics in the hope that they will look and feel more attractive.

One of the main goals is to combat the effects of ageing, including fighting wrinkles and sagging skin, but other products are aimed at specific problems such as spots, dry or oily patches, scarring and sun damage.

It's huge business. In 2004 the UK skin care market grew by 12.8 per cent to more than £500 million (\$1.1 billion US). Other European markets are similarly large. The biggest, France, had sales of more than £1.3 billion (\$2.58 billion US) in 2003 and Italy had sales of more than £700 million (\$1.35 billion US).

Such is the demand for skin care

solutions that some consumers think nothing of spending hundreds of pounds on single tubs of the most expensive products. And while mainstream topical products are in demand, increasingly so too are supplements taken internally that can do much to boost and invigorate the skin.

Natural ingredients can work in sympathy with the body, stimulating and supporting skin functions and boosting skin tone, clarity and firmness and reducing lines and wrinkles.

Wrinkles and ageing

It's impossible to keep lines away forever, but some ingredients – outlined below – can keep the worst at bay when taken internally.

Vitamin C

– a powerful antioxidant – helps protect the skin from sun damage, and can even reverse some of the effects of sun damage on the skin. The vitamin also increases the production and synthesis of collagen, making it one of the most useful ingredients in skin care.

Dimethylaminoethanol – or DMAE – is found naturally in fish skin and provides excellent collagen support. It's also known for helping to reduce age spots.

Alpha lipoic acid is another potent antioxidant that fights free radicals to reduce the breakdown of skin elasticity and can be taken internally. Some say it can improve skin in just a few weeks.

Vitamin A helps the skin regenerate and rejuvenate properly by supporting the growth of skin collagen, boosting plumpness and reducing wrinkles.

Another anti-wrinkle ingredient is **Coenzyme Q10** – a substance which can prevent damage to the collagen and elastin production process thanks to its antioxidant qualities.

Isoflavones from soy beans are a well established anti-ageing ingredient and help by improving the entire skin structure so contours appear smoother and firmer.

White tea – harvested from the tea plant in spring when the buds are just breaking through – contains antioxidant polyphenols that help the skin to preserve a youthful appearance.

Skin vitality

B vitamins, including B1 (thiamin) B2 (riboflavin), B3 (niacin), B5 (pantothenate), B6 (pyridoxine), B12 (cyanocobalamin) and folate can help skin tone. They can also act as a tonic to the nervous system – nervous conditions often contribute to rashes, acne and other skin problems.

The mineral **zinc** helps encourage healing and tissue repair and is also needed by the skin's oil producing glands.

L-cysteine is a non-essential amino acid that is an important component of the keratin of the skin, and oral supplements can promote healthy skin texture and elasticity.

Dry skin and eczema

Essential fatty acids are needed to keep the skin smooth and soft – **fish oil** is a great source of **omega 3** EFAs. The **omega 6** EFAs found in **evening primrose oil** – gamma-linolenic acid and linoleic acid – are also useful, helping to combat eczema and psoriasis as well as helping maintain healthy skin.

Spots and acne

One of the most common skin problems, spots or acne affect nearly everyone at some point in their lives, particularly during teenage years.

Both **dandelion** and **burdock** plants, taken internally, have de-toxifying properties which can help clear the skin.

Blushing

Severe blushing – or acne rosacea – can be very embarrassing. Some people have found the flower **pulsatilla** to be useful, while other sufferers report an improvement when using **grapeseed extract** internally. **Pine bark extract** can help combat the skin's inflammatory response.

Tissue healing

Vitamin E is a powerful antioxidant that is necessary for tissue repair as well as promoting normal blood clotting and healing and reducing scarring from some wounds.

Topical treatments

As well as the orally-taken supplements, other natural ingredients applied topically to the skin can be useful. **Aloe vera** and **cocoa butter** are key moisturisers and **lavender oil**, **tea tree oil** and **witch hazel** are great for skin problems and irritations due to their antiseptic properties, helping to heal by reducing pain and inflammation.

RAW materials

Colostrum

Colostrum is the pre-milk fluid mothers make during the first 24 to 48 hours after giving birth – it's high in nutrients and rich in antibodies to help fight infection.

Bovine colostrum is the most common form of colostrum supplement and is thought to have a useful set of health benefits in humans. The ingredient is linked with boosting the immune system, helping treat diarrhoea, improving gastrointestinal complaints and also helping to protect against peptic ulcers caused by drugs such as aspirin. Several studies of colostrum have given further support to the claims, especially in combating bacteria in the gastrointestinal tract.

Rhodiola rosea

Rhodiola rosea is a herb thought to be useful in enhancing both physical and mental wellbeing and combating stress. In Siberia, where the plant is generally found in mountain regions, Rhodiola is drunk in a tea as a tonic and to boost the immune system.

Research in Russia found that stressed students who took the herb for 20 days outperformed those taking a placebo – they were less fatigued and reported higher levels of wellbeing.

Other separate studies have suggested that Rhodiola can help the body to burn fat stores, alleviate symptoms of depression and increase cognitive performance.

Broccoli

Already well established as part of a healthy diet, broccoli has some exceptional health properties that make it one of the most nutritious vegetables.

A number of major studies have shown it to be a powerful weapon in combating cancer and heart disease as well as tackling cataracts, ulcers and rheumatoid arthritis.

The vegetable contains a compound called sulforaphane glucosinolate (SGS) which is thought to trigger an increased antioxidant defence mechanism and a lowered inflammatory response.

Broccoli, a member of the cabbage family, is an excellent source of vitamin C, vitamin A, folate and dietary fibre, as well as being a rich source of many other minerals and vitamins.



After treating the Alzheimer's mice for several months with daily injections of pure EGCG, the researchers found a decrease of up to 54 per cent of the Alzheimer's brain plaques.

The researchers say that the effects observed may not be brought about by drinking green tea, but that pure EGCG may be required.

Dr Doug Shytle, who worked on the study, said: "A new generation of dietary supplements containing pure EGCG may lead to the greatest benefit for treating Alzheimer's disease."

Cancer-combating veg

Compounds found in many vegetables are highly effective in the fight against cancer, new studies suggest.

In one investigation on mice, naturally occurring isothiocyanates from vegetables were found to be able to block lung cancer progression. The same compound was also effective in stopping human cancer cells in the lab.

In earlier research, scientists have shown how natural chemicals in *brassica* vegetables such as cabbage, broccoli, mustard and cauliflower can tackle the uncontrolled cell division of colon cancer cells. The chemical allyl-isothiocyanate (AITC), released when the vegetable is chewed, chopped or cooked, was found to act in much the same way as many anti-cancer drugs.

Butterbur effective for hay fever

The largest trial of its kind so far has indicated that butterbur extract

is a powerful weapon in the fight against hayfever. Researchers found that butterbur is as effective in combating symptoms as a commonly used antihistamine, and also doesn't cause any drowsiness.

Teams from Germany and Switzerland studied 330 hay fever patients in 11 centres. Lead researcher Andreas Schapowal says: "Because Butterbur does not cause the sort of drowsiness that is so often associated with other anti-histamines it could be particularly useful for patients who can not tolerate other therapies."

Butterbur extract can inhibit the body's ability to produce leukotrienes, biomolecules that are involved in the inflammatory response to allergens. They also help stimulate the body's production of prostaglandins, chemicals that play a role in reducing inflammation.

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News bites

Green Tea - chemical tackles Alzheimer's

An ingredient in green tea could help protect the brain from Alzheimer's disease, researchers have discovered.

Scientists in Florida, US, found that epigallocatechin-3-gallate (EGCG) in the tea prevented Alzheimer's-like

damage in the brains of mice bred to develop symptoms.

It's thought to work by decreasing the production of the beta-amyloid protein which forms the characteristic plaques found in the brain of Alzheimer's patients.