

# Synergy

## Tackling the threat of bird flu

Bird flu is never far from the headlines as the world waits with baited breath to see if it will spread - as is feared - to large areas of the human population.

Already the disease has killed more than 128 people since it was first identified in South East Asia, with Vietnam, Indonesia and Thailand among the worst hit countries.

In January this year it spread to Turkey, resulting in 12 cases and four deaths, prompting concerns that many more people in Europe will become infected.

At the moment the H5N1 virus predominantly affects those people who are in very close contact with infected birds, such as livestock owners. But scientists say the virus could mutate into a form that could be easily transmitted among humans

– and with a mortality rate as high as 50 per cent there is the very real prospect that millions could die.

Scientists are racing to find effective treatments and vaccines, but the natural world too has incredible potential thanks to a host of anti-viral and immunity-enhancing substances.

Tamiflu – the generic name is oseltamivir – is a well-known anti-flu treatment and supplies are being stockpiled across the world in a bid to fight bird flu breakouts. Shikimic acid is the starting material used to produce the main antiviral agent in the drug – the acid is obtained from Chinese star anise, a fruit that is found mainly in China and whose supply has dwindled due to high demand.

Now scientists have found that the



**sweetgum** tree is also rich in shikimic acid - particularly its mace-like green fruit sometimes called 'gumballs' - and could be an important source of the potentially life-saving chemical.

One unusual but potentially highly useful ingredient against bird flu is **sauerkraut**. Scientists think the spicy chopped cabbage dish - which is fermented for at least a month - contains a bacteria that may combat the deadly disease.

In a study in South Korea, 13 chickens infected with bird flu were fed the dish and just one week later 11 of the birds showed signs of recovery from the virus.

"The feed has been shown to help improve the fight against bird flu or other types of flu viruses," said Prof Kang Sa-ouk, who led the research at Seoul National University. Prof Kang's team says that lactobacillus, the lactic acid bacteria created during the fermenting process, is the active ingredient that could combat bird flu.

**Selenium** is thought by many to be useful in fighting the threat of H5N1. One theory is that low dietary levels of selenium could allow the virus to flourish and mutate because of a reduced antioxidant activity in the body – indeed selenium intake in Asia where bird flu

started is thought to be among the lowest in the world.

Dr Margaret Rayman of the Centre of Food Safety and Nutrition at Surrey University says: "Taking a selenium supplement may make a difference to a person with low selenium status and may help them deal more quickly and effectively with a viral infection. This could reduce their chances of becoming seriously ill."

Active ingredients in **elderberries** could also be useful in combating bird flu – trials have reported a cut in the duration of the common flu by up to half, along with significantly reduced symptoms. Lab tests have also indicated it can neutralise the H5N1 virus in cell cultures.

Another useful plant is **ginseng** – studies have shown it can both lower the risk of getting flu as well reducing the duration of the disease in those affected, by several days.

As well as the key ingredients featured above, a host of other important anti-viral and immune system boosting substances could also be helpful against bird flu, including **vitamin C and E, magnesium, echinacea, garlic, zinc, green tea, St John's Wort, probiotics, skullcap, cat's claw and turmeric**.

## 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 first article in this issue looks at the very real threat of bird flu. While the number of human sufferers is still very low, experts predict it will be only a matter of time before the virus mutates into something much more deadly. Read how natural products, backed by scientific research, can offer a powerful response to the problem.

On page two we report the exciting results from new research conducted on behalf of natural product manufacturer Dr Grandel. The study looks at the effects of the Dr Grandel supplement Memory PS, based on phosphatidylserine, and how it can improve mental wellbeing and cognitive performance. The investigation adds further weight to the wealth of benefits that PS can bring, and with a huge potential market it's a supplement that's sure to grow further in popularity.

Finally, heart disease is the UK's biggest killer and our feature on page three looks at how cholesterol – one of the biggest risk factors in circulation problems - can be significantly reduced using natural ingredients. We've outlined a host of cholesterol busters, many of which work in similar ways to conventional medical drugs, and with a growing awareness of heart health it's never been a better time to investigate this area.

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](mailto:pPhillips@synpharma.co.uk).

# New PS study confirms benefits



All of us would like a sharper mind, better memory and a feeling of improved mental wellbeing.

Phosphatidylserine – commonly known as PS – is a powerful supplement that could provide exactly those benefits, as well as a host of others, helping people of virtually any age and at any stage of their life. PS is a lipid present in every body cell but found in particularly high concentrations in the brain. This makes it hugely important in keeping us alert and our memory and mind in tip-top condition.

Already many international studies have shown the positive effects of PS. A new trial, conducted on behalf of natural product manufacturer Dr Grandel, has further reinforced

the potential of the supplement with a fresh set of exciting results.

A team at the Department of Psychiatry and Psychotherapy at the University of Erlangen-Nornberg, Germany, looked at the effects that the Dr Grandel product, Memory PS, had on intellectual fitness in psychometric tests and in everyday life.

The aim was to test for any changes in memory as a result of taking the product – now on sale in Germany – as well as any improvements in wellbeing and the ability to deal with stress.

A total of 109 adults took part in the study – ages ranged between 20 and 74, with an average of 50, and 60 per cent were female. The subjects were randomised and given

daily capsules containing either a placebo substance or 100 mg of Memory PS. Data was gathered at the start of the study and again after four and eight weeks.

Interestingly, the findings showed that the speed of information processing increased with both the placebo and Memory PS supplement from week four to week eight. However, memory processing significantly increased in the PS treated group from week four to eight while this rise was not seen in the placebo group.

Working memory capacity as a product of information processing speed and concentration span did not increase significantly in the treated group within the first four weeks, but by week eight it had risen significantly.

No changes were found in the body mass index of subjects with either of the preparations, suggesting that PS treatment did not result in any weight gain. In a report the researchers, headed by Dr Siegfried Lehl, said: “The ingestion of phosphatidylserine increases the speed of information processing and extends the memory span. This also increases the capacity of the working memory. “In parallel, a more positive attitude to everyday events develops: the subjects perceive their life in a more optimistic and less stressed way and behave accordingly. However, they are not aware of these changes in their everyday life.” They added: “The effects described are greatest within four to eight weeks but had not yet

## factfile Name:

**Phosphatidylserine (PS)**  
**Made from: Soy lecithin**

Commonly available as capsules, tablets, or powder

### Health benefits:

Thought to boost memory, focus and concentration and combat stress, anxiety and depression. It is also thought to help fitness and exercise training.

### Market opportunities:

Potentially huge as virtually anyone, from children to the elderly, are thought to benefit. Students might find it helpful for their studies while older people can help keep their minds in top condition.

**Dosage:** Researchers have found good results between 100mg and 500mg a day.

**If you would like more information on PS, please contact SynPharma.**

come to an end on termination of the observation period.”

The team also said that there was no indication that PS treatment should be restricted to subgroups as it appeared to be useful for a wide variety of people. Concluding, the researchers said: “Alongside the increase in intellectual performance, individuals taking PS become more optimistic and capable. Taking phosphatidylserine as a supplement over several months is therefore of valuable assistance in achieving an increase in their quality of life.”

## What is PS?

PS belongs to a category of fat-soluble substances called phospholipids, which are essential components of cell membranes. One of the substance’s main functions is to keep the membranes fluid, flexible and ready for nutrient absorption.

It also plays a critical role in supporting nerve tissue by helping the release and reception of neurotransmitters, helping to keep the

memory-related pathways functioning smoothly.

Low levels of PS can lead to decreases in learning ability, alertness and memory. In some cases depression is also thought to be caused by PS problems. Older people may be particularly prone to PS deficiencies – especially those with age-related cognitive problems.

As well as the improvements in

memory, cognitive performance and concentration, researchers also think PS can help slow the decline in some Alzheimer’s sufferers, especially in the early stages of the disease.

It’s thought that a PS supplement can reduce levels of stress by lowering the hormone cortisol as well as enhancing the sense of wellbeing. PS is linked with improving mood and behaviour in most people and researchers have

found it can greatly help depressed adults.

Elevated cortisol levels promote accumulation of fat and muscle breakdown – interfering with exercise and training – so the supplement is also useful to those people looking to keep fit and trim. The PS effect may help enhance recovery and repair of tissue, particularly following intense exercise or injury.

# Cutting cholesterol – naturally

Coronary heart disease is the UK's biggest killer, with more than 100,000 deaths every year. One of the biggest risk factors is high cholesterol, with plaque deposits building up in arteries to gradually choke the heart of its vital blood supply – or even stop it altogether during a sudden attack.

Smoking, a poor diet and a lack of exercise can all result in raised cholesterol levels, and some people also have a genetic link. The charity Heart UK estimates that two thirds of the British population have high cholesterol levels, with millions risking serious health problems.

There are two main forms of cholesterol - low density lipoproteins (LDL) and high density lipoproteins (HDL). LDL carries cholesterol from the liver to the cells and is often called 'bad cholesterol' as too much will fur up the arteries, while HDL return excess cholesterol away from the arteries back to the liver so is termed 'good cholesterol'.

Conventional medicine is vital in coronary heart disease, and one of the most significant cholesterol-lowering drugs are statins, which are now also available over the counter in the UK. Natural ingredients too can help in this battle against high cholesterol – even in tandem with conventional treatments with a doctor's agreement – working in harmony with the body.

**Policosanol**, a substance derived from several sources including the wax of sugar cane and rice bran, has been

shown to have a powerful effect in reducing cholesterol levels and is thought of as a promising new agent. In one trial, participants taking 20mg of policosanol a day saw significantly reduced bad cholesterol, together with increased good cholesterol levels. Another study found that 10mg was enough to cut bad cholesterol by 24 per cent and increase good cholesterol by 29 per cent.

Scientists at the US Department of Agriculture have discovered that a compound in **blueberries** acts in a similar way as commercial drugs to lower bad cholesterol. Tests on lab rats found that the antioxidant pterostilbene could help stimulate a receptor protein in the animal's liver cells which plays an important part in lowering cholesterol and other blood fats.

The action of **red rice yeast** reduces cholesterol in a similar way to statins by inhibiting an enzyme that promotes cholesterol conversion in the liver. A US clinical trial found that those taking red rice yeast could lower cholesterol by 15 percent over an eight-week period. In another study, bad cholesterol in subjects dropped by 31 per cent in the same timeframe.

Naturally occurring **plant sterols** or **phytosterols** are thought to help block the absorption of dietary cholesterol and cholesterol in bile, and clinical trials have shown they can help lower cholesterol levels.

Traditionally used by the ancient Egyptians, Greeks and Romans,



**artichoke** has now been given the backing of modern research and is thought to help mobilise fatty stores and lower cholesterol thanks to its key active ingredient, cynarin.

Researchers in Israel discovered that **pomegranate** juice can fight the oxidation of bad cholesterol, helping reduce blocked arteries. The fruit is rich in vitamins A,C and E as well as flavanoid antioxidants. Another group of Israeli researchers found that patients who ate one **grapefruit** a day had lower cholesterol levels due to the antioxidants in the fruit – and red grapefruit was more effective than the white variety.

Studies have shown that **omega 3** and **6** essential fatty acids (EFAs) help protect the heart. One US trial revealed that one of the omega 3 EFAs in particular, alpha-linolenic acid from **walnuts**, **walnut oil** and **flaxseed oil**, not only lowered bad cholesterol but also decreased markers for blood vessel inflammation.

Researchers believe that **resveratrol** is partially responsible for the cholesterol-lowering effects of **Japanese or Giant knotweed**. Chinese medicine has been using Giant knotweed to reduce high cholesterol and it has also been linked to helping heart disease, cancer, ageing and Alzheimer's disease.

**Oats** are a long-established ingredient in cutting cholesterol and it's thought that chemicals in them help prevent fatty deposits lining the artery walls.

**Cranberries** meanwhile have been found by Canadian researchers to boost good cholesterol, as well as providing strong antioxidant protection against bad cholesterol. **Garlic** and **green tea** are also powerful anti-cholesterol ingredients. One investigation found that garlic could reduce cholesterol by 12 per cent over three months, while a study in China showed that taking green tea over three months had a 16 per cent reduction in bad cholesterol.

Similarly, an extract from the **hibiscus flower** could have powerful heart health benefits thanks to its high antioxidant levels, according to scientists in Taiwan who found it lowered bad cholesterol in rats.

Finally, another potentially useful ingredient is **citrus peel** - US scientists found hamsters fed compounds called polymethoxylated flavones found in tangerine and orange peel had significantly lowered cholesterol. A diet containing just one per cent PMFs was enough to cut the animals' cholesterol by up to 40 per cent.

**Please contact SynPharma for more information or advice on sourcing any of the ingredients discussed.**

## Market opportunities

There is already considerable consumer demand for cholesterol lowering products as awareness of heart health grows.

The British Heart Foundation say that there's nearly 30 million annual prescriptions for statins and other cholesterol-lowering drugs – almost 17 times the number prescribed just a decade ago.

Other heart drugs are also on the rise, adding up to a total of 200 million prescribed in 2004 – almost quadruple the figure 20 years ago.

## RAW materials

### Phytosterols

Also known as plant sterols, phytosterols are a naturally-occurring class of compounds found in the cells and membranes of plants. They have a similar chemical make-up as cholesterol and a large body of scientific research dating back to the 1950s has indicated that they can actively reduce cholesterol levels in both animals and humans. While the exact mechanism is not fully understood, phytosterols are thought to work by blocking the absorption of dietary cholesterol in the gastrointestinal tract – studies have indicated that plant sterols can lower bad cholesterol by between 10 and 20 per cent. Phytosterols have also been linked with boosting the immune system, especially in those who are immune-compromised, and some sufferers of rheumatoid arthritis have reported greater mobility, less pain and less infection after taking the substance.

### Pomegranate

Pomegranates have been hailed as a 'super fruit' following studies which indicate they could help combat heart disease. Researchers at the Lipid Research Laboratory in Haifa, Israel have shown that drinking the fruit's juice can reduce the size of atherosclerotic lesions – which narrow the arteries and eventually cause heart disease – by almost half. Pomegranates have also been shown to help fight the oxidation of bad cholesterol – a high level of which has been linked to hardening of arteries and an increased risk of heart attack and stroke. Biochemists behind the research say that high-risk patients might even be spared heart bypass surgery just by drinking enough pomegranate juice. Experts say the fruit contains more antioxidants than other juices, red wine or even green tea, and is also a rich source of vitamins A, C and E.

### Resveratrol

A compound found in a number of plants, resveratrol has been linked with a wide range of health benefits thanks to its anti-viral, antioxidant and anti-inflammatory properties. The substance is made by plants as an anti-fungal agent and good sources include grapes, red wine, blueberries, peanuts and Japanese or Giant knotweed (*polygonum cuspidatum*). Knotweed is used in traditional Chinese medicine to treat high cholesterol, and researchers are looking at a host of other potential uses for resveratrol, including helping combat heart disease, cancer, ageing and Alzheimer's disease. One study in Taiwan on lab rats found a single dose of the substance resulted in an improved blood flow in the brain by 30 per cent, helping reduce the risk of stroke.



researchers say the protective mechanism could be due to the anti-oxidant activity of the flax lignans. Researcher Dr Paul Kinniry wrote in the *Journal of Nutrition*: "To our knowledge, our study shows here the first supporting evidence to indicate that dietary supplementation with flaxseed can ameliorate oxidative tissue damage and inflammation in certain forms of experimental acute lung injury."

### Grapefruit for healthy teeth

Grapefruit can help fight gum disease thanks to its high vitamin C levels, scientists have discovered. Researchers found people with gum disease who ate two grapefruit a day for a fortnight showed significantly less bleeding from the gums. It is thought that an increase in the blood levels of vitamin C help by limiting damage by free radicals.

The two-week study of 58 people was conducted by scientists at Friedrich Schiller University in Germany and is published in the *British Dental Journal*.

At the start of the two-week trial, virtually all those taking part had low levels of vitamin C in their blood plasma. Eating two grapefruit a day raised vitamin C plasma levels for all those who ate them.

In smokers, the level almost doubled, but because they started from a lower baseline their average vitamin C level was still lower than that recorded in the non-smokers.

### Fats and vitamin 'fight MND'

Diets high in vitamin E and polyunsaturated fats could halve the risk

of developing motor neurone disease. Dutch researchers found people who had the highest daily intake of the vitamin and fats had a 60 per cent lower risk of developing MND compared to those who ate the least.

The team, from the University Medical Centre in Utrecht in the Netherlands, studied 132 MND patients and quizzed them on their diet and vitamin intake. A daily vitamin E intake of between 18 and 22mg was linked with a 60 per cent lower risk of developing MND, as was a daily intake of more than 32g a day of polyunsaturated fats.

Polyunsaturated fats include omega 3, in fish and leafy vegetables and omega 6, in cereals and whole-grain bread. Writing in the *Journal of Neurology Neurosurgery and Psychiatry*, the researchers say the fats and vitamin could prevent cell damage from the disease.

### Feedback

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:-

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## News bites

### Flaxseed's lung boost

Supplements containing flaxseed could be effective against lung damage and inflammation, the results of a new study suggest.

US researchers from the University of Pennsylvania and North Dakota State University fed flaxseed to lung-

damaged mice for up to 10 weeks. The team found that flaxseed supplementation resulted in decreased levels of lung damage in most of the mice.

Flaxseed is a rich source of lignans and omega-3 fatty acids, and the