

Synergy

Stress: the modern disease

STRESS is the modern disease that affects virtually all of us – with sometimes crippling physical and mental effects. 21st century life is never less than hectic, with constant demands from work, home and social lives, leading to precious little spare time and a feeling of not being able to keep up the pace.

Despite the vast increase in labour-saving devices over the last 50 years, we are more enslaved than ever to our gadgets – computers, mobile phones and MP3 players to name just a few. The internet and e-mail are culprits too. A study by Glasgow and Paisley universities discovered that more than a third of workers feel stressed by the volume of work e-mails, and that some check their inbox up to 40 times an hour – leaving them tired and frustrated.

Work is one of the main culprits – indeed stress is the second biggest cause of time off work and is estimated to cost the UK £13bn a year. Tight deadlines, little job security, high workloads, poor support from colleagues and even bullying by bosses are all to blame. Just getting to work can be stressful, with long, crowded commutes on public transport and traffic-clogged roads all sending tempers soaring.

Researchers at Newcastle University found that one in three Britons feels stressed every day, with women suffering worse at 37 per cent compared to 23 per cent of men. The younger popu-



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lation are the most frequently stressed with nearly half of 16 to 24-year-olds feeling “pressured” on a daily basis. The recent study revealed half of people are prone to stress because they rarely or never switch off their mobile phones and a third rarely experience a sense of privacy. More than half claimed they have an insufficient amount of energy.

There is no denying that occasional, acute stress is important and useful – it helps us cope with short-term goals,

problems and emergencies. But over a longer period this response can cause serious health problems and is known to be an important factor in a host of mental and physical conditions.

Professor Nicol Ferrier, from the Institute of Neuroscience's Psychobiology Research Group at Newcastle University, said stress at any time of life may lead to long-term detrimental effects on the body and brain. One survey found that more than a third of British men

drink too much because of work stress, a quarter feel constantly exhausted and 17 per cent see a doctor for stress-related problems. A Cambridge University study on data from 20,000 people revealed that those who coped well with stress cut the risk of a stroke by almost a quarter. Meanwhile, having a high-pressure job doubles the risk of depression and anxiety in young adults, scientists at Kings College London found.

Chronic stress is also linked with poor immunity, stomach ulcers, severe indigestion, irritable bowel syndrome, clinical depression, high blood pressure, cardiovascular disease and some cancers. Scientists at the University of California even found that chronic stress can speed up cell ageing, leading to the early onset of age-related diseases.

Other key symptoms of stress include irritability, aggressive outbursts, sleeping problems, constant tiredness, low libido and even impotence, sometimes leading to marriage or relationship breakdown. Stress is thought to play a large part in poor fertility – a laboratory study on stressed mole-rats at the University of London discovered that stress blocked ovulation in female rodents and lowered the sperm count of males. If high-stress levels are ignored, sufferers can become severely depressed, badly affecting all aspects of their lives and possibly even leading to alcohol or drug addiction.

With the huge problem posed by stress, it's no surprise that the market for products that can help tackle the causes and alleviate the symptoms is already vast, and set to increase even further. For example, research by market research firm Mintel found UK consumers spent £191m on complementary medicines in 2007 – a 32 per cent increase since 2002 – with predictions that sales will reach £250m by 2011. Similarly, the UK vitamin and mineral market was worth £325.7m in 2005 – these are products often taken by those looking to alleviate the symptoms of stress.

Turn to our report on page two and three to read about the huge variety of natural ingredients that can play a crucial role in combating stress by supporting and nurturing both the body and mind.

welcome to the latest issue of Synergy

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.

In this issue we've taken a look at what has become known as the modern disease: stress. All of us face a hectic work, home and social life nowadays, where pressing deadlines and taskmaster bosses compete for time with our family and friends.

It's inevitable that a roller coaster lifestyle will take its toll on health, with chronic stress being linked with a host of complaints, problems and diseases.

That's where natural ingredients can make all the difference – giving a gentle boost to mood, energy and concentration while strengthening the nervous and immune systems to ward off the worst stress symptoms.

The choice of potential candidates for anti-stress supplements is huge. On pages two and three we've rounded up some of the very best available to give an idea of the scope of this key segment. Many of these ingredients have been used for centuries as traditional remedies and now modern science has confirmed their potential, with dossiers of positive trials and studies.

The market for stress-busting supplements is vast as consumers strive to manage their lifestyles with minimum health impact – it's one well-worth investigating.

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 also those you want to see discussed in the future.

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Combatting stress effectively - using

A HOST of natural ingredients can play a pivotal part in combating stress and easing anxiety, as well as reducing symptoms and giving the body a mental and physical boost. Here we look at some of the most useful supplements, including herbs, minerals and vitamins, to see how they can help out with the rigours of modern-day life.

Nerves

Anxiety and irritability are key symptoms of stress and the body's adrenal glands are in the frontline. In times of trouble they produce adrenaline to release energy and speed up the heart. **Vitamin B** is thought to be useful in supporting the glands, and **magnesium** can soothe the nervous system and tackle tiredness caused by stress.

Rhodiola, a native herb of eastern Siberia, is another stress-buster - Russian research has shown it promotes production of serotonin, the 'feel good' hormone, and stabilises the adrenal hormones. **Skullcap**, **motherwort**, **lavender** and **chamomile** all have a calming effect, while **passionflower** is used to help remove feelings of nervousness and panic.

Omega 3 essential fatty acids - found in fish oils and in some plant sources - are also a useful tonic. A French study found that people given 7.2g of fish oil daily for three weeks had lowered levels of stress hormones, including adrenalin and cortisol. The British Association of Anger Management found that omega 3s can help improve our ability to cope in stressful situations.

Depression

Feeling low is an all too common problem among stress sufferers. **St John's Wort** is one of the most popular - and powerful - herbs in combating depression, and its properties are backed up by many trials. A German study found that the remedy was even more effective than a conventional anti-depressant drug in treating moderate and severe depression, and had fewer side effects.

While the exact mechanism isn't known, St John's Wort is thought to work in a similar way to anti-depressants known as serotonin-reuptake inhibitors, which increase the availability of serotonin, a neurotransmitter linked with mood. Other natural ingredients can also be very useful - **damiana**, a popular herb with a reputation as an aphrodisiac, is

thought to act as an anti-depressant and the ancient Greeks used **lemon balm** to boost mood. **Wild oats** are used in many cultures as a nerve tonic and anti-depressant, particularly in combating mental exhaustion.

Headache and pain

Tension headaches - and very painful migraines - are closely linked with stress. The root of the **butterbur** plant has been shown to be useful in combating headaches, possibly due to its anti-inflammatory properties. Studies in the US and Germany found that a 75mg extract of the herb, taken twice daily over a four-month period, could reduce the frequency of migraines by nearly half.

Bromelain - a natural enzyme found in pineapple - has well-recognised analgesic effects, while **feverfew** has been used for migraines by herbalists since the Middle Ages. Researchers say that it works by decreasing the flow of pain-causing prostaglandins. **Black cohosh** is often used for back and muscle pain as well as migraines thanks to its anti-inflammatory actions. **Devil's claw** has been shown to relieve back pain while **white willow bark**, which has properties similar to aspirin, is also effective.

Energy

One of the most common causes of tiredness is a deficiency in nutrients from a poor diet. The **B vitamins**, **vitamin C**, **iron**, **zinc** and **magnesium** help the body produce energy from food, and fatigue can result when these are in short supply. **Ginseng** has been used for thousands of years in China as a tonic to improve wellbeing, performance and stamina. Researchers found it can help fatigue and may also increase intellectual ability by gently stimulating the pituitary and adrenal glands.

Pfaffia, also known as Brazilian ginseng and suma, is a useful herb which is thought to work by restoring nerve and glandular functions and balancing



the endocrine system. Some athletes have taken **pfaffia** to increase muscle-building and endurance. **Guarana**, also originally from Brazil, has traditionally been used as a tonic and a stimulant. The herb contains about 15 per cent of the caffeine found in a cup of coffee, but the caffeine is released and absorbed slowly into the body, creating a longer and gentler boost.

The leathery leaves from the **yerbamate** tree have a strong reputation for combating fatigue and promoting energy and vitality, probably due to their caffeine content. **Kola nut** is a popular pick-me-up in many West African cultures, with its caffeine content acting as a strong stimulant.

Co-enzyme Q10 (CoQ10) is a powerful antioxidant found in virtually all human cells. It's manufactured in the body but sometimes the body's supplies can run low, especially during times of stress. A supplement can help, providing the extra protection against free-radical damage in the cells and helping to convert food into energy. Research suggests older people especially may be lacking in CoQ10, making them more liable to suffer from fatigue.

Libido and fertility

For couples, stress can quickly take its toll on previously healthy relationships. The herbs **safron**, **oregano** and **coriander** have all been linked with aphrodisiac properties, and **catuaba**, a Brazilian rainforest herb, is reputed to affect potency and fertility and is traditionally drunk as a bitter tea.

Horny goat weed has been likened to a 'natural Viagra' while **damiana** leaves are an ancient aphrodisiac used in Central America to improve libido. **Maca**, related to the turnip, could also be useful - trials have shown that men who take extracts can heighten libido and improve semen quality. **Schisandra** is a Chinese herb with a reputation as an aphrodisiac and is thought to boost mental and physical performance.

Eurycoma longifolia, native to south east Asia, is popular for its alleged testosterone-enhancing properties and has a reputation as an aphrodisiac, with some studies suggesting it enhances sexual characteristics in animals. **Ashwaganda** is a member of the pepper family and when used medicinally is thought to be invigorating, helping boost sexual energy.

g the power of natural ingredients



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Blood sugar issues

Stress can lead to a very poor diet with fast food and fatty or sugary snacks playing havoc with blood sugar levels. **Nopal**, also called the prickly pear cactus, has been used as a remedy for thousands of years. Research at the University of Lyon in France has suggested that it can be effective in moderating glucose and increasing the effectiveness of insulin – which means that fats and sugars can be better absorbed by the body.

Chromium is often cited as an ingredient in diet supplements as it is important for glucose metabolism. Similarly **potassium** and **pyruvate** – a substance naturally occurring in the body – are both important for the energy conversion of glucose to glycogen and **magnesium** helps the storage and release of glycogen. **Fenugreek**, a herb often used in curries, is taken by many as a digestive aid and studies have shown that supplements could help regulate blood sugar levels in diabetic patients as well as combat damage to the liver.

Another plant traditionally taken to help combat diabetes is **Gymnema sylvestre**, native to India. Trials have shown it can reduce blood sugar levels if taken

over an extended period. It's thought it could reduce sugar cravings by blocking the sugar receptors on the tongue and also help delay glucose absorption in the blood. **Bitter melon**, also known as *Momordica charantia*, is a vine fruit used in Asian herbal medicine to aid digestion, with a reputation for helping control blood sugar levels – scientific studies suggest the herb has potential.

Indigestion

Ongoing stress can trigger severe indigestion and stomach and bowel problems. **Aloe vera**, a traditional remedy for inflammatory bowel disease, can help by alleviating pain and bloatedness while reducing cramps.

Slippery elm helps put a protective coating on the stomach to stop food irritating the gut and **liquorice** and **marshmallow** can also help. **Dandelion** and **milk thistle** can be useful to stimulate proper digestion and bowel function. **Peppermint oil** contains more than 100 chemicals and trials have shown it is useful in reducing excess wind and combating cramps.

Magnesium is linked with soothing the muscle lining of the intestinal tract while the roots of the **turmeric** plant provide **curcumin**, an anti-inflammatory, which may help to calm the intestines. Other helpful herbs include **boswellia**, to reduce cramps and diarrhoea, and **artichoke**, a traditional liver detoxifier.

Pre and Probiotics

A potential cause for digestion problems is a shortfall in the 'good' bacteria in the gut needed for proper digestion. **Probiotics** – a fresh supply of 'friendly' live bacteria such as **bifidobacteria** and **lactobacilli** – can restore this. Researchers from Canada's McMaster University found that probiotics could help ease gut disorders linked to long-term stress, such as Crohn's disease. Tests on lab rats given probiotic supplements revealed that the 'good' bacteria were effectively crowding out the 'bad' bacteria.

Prebiotics are also becoming increasingly popular – these don't add 'good' bacteria to the body, but instead help feed them in the digestive tract, creating a good environment for them to flourish.

Italian scientists at Milan's Centre for Infant Nutrition found that the risk of atopic dermatitis was cut by more than half in babies given prebiotics in their formula. Prebiotics are usually a form of natural, indigestible starch found in foods such as banana, onions, chicory, leeks, asparagus and Jerusalem artichokes. **Fructo-oligosaccharides (FOS)** are key natural prebiotics and have been very popular in Japan for many years.

Immune system

Stress inevitably affects the immune system, leaving us susceptible to infections. **Echinacea** is often used to ward off colds and flu and shorten illnesses. Researchers think it can boost immune defences by between 10 and 20 per cent – it's thought to work by stimulating white blood cells and also has antioxidant and antiviral properties. **Vitamin C** is important to the immune system and some people swear that large doses can stop infection in its tracks. Key natural sources of vitamin C include **Acerola** fruit, **Camu camu** and **acai berries**.

It's thought that **menthol** can help because of its anti-bacterial action, and **garlic** can stimulate white blood cells while also having anti-viral properties. **Zinc** is thought to boost immunity by releasing **vitamin A**, which is stored in the liver, and it also helps strengthen cell membranes against viral attack. **Plant sterols** and **sterolins**, found in fruit, vegetables, seeds and nuts, are linked with helping the immune system and reducing the susceptibility to infection. **Rhodiola** is popular in Russia where it has a reputation as a powerful immune-enhancer as well as combating stress.

Memory and concentration

Chronic stress and anxiety can badly affect mental agility. **Ginkgo biloba**, often called the 'brain herb', works by increasing oxygen flow to the brain and protecting it from damaging free-radicals. It's got a reputation as a memory and cognition booster and is also used to help slow or prevent memory loss associated with aging and Alzheimer's disease. **Ginseng** is another herb that can help concentration by targeting neurotransmitters in the brain. Researchers have found that by combining both

ginkgo and ginseng, the results can be even more useful. Another natural brain booster is **soy**, rich in **plant oestrogens** which are known to stimulate neurotransmitters and improve memory. Soy is also thought to help the brain blood supply. The **B group of vitamins** are essential for healthy brain function, helping deliver oxygen, provide free radical protection and make acetylcholine, a key brain chemical needed for memory. Research at the University of Northumbria has shown that essential oils made from **rosemary** boosted alertness and improved memory by about 15 per cent and **peppermint** and **lemon balm** oils are thought to have a similar effect.

Omega 3 essential fatty acids are important for good brain function and have been shown to help boost concentration and improve cognitive performance. **Phosphatidylserine** – commonly known as PS – is a type of lipid found in particularly high concentrations in the brain – this makes it hugely important in keeping us alert and our minds active. PS and omega 3s can work together synergistically to support the brain and encourage better cognitive performance, mood, concentration and memory.

Sleep

Stress and nervous energy can trigger insomnia and poor sleep. **Lavender** and **lemon balm** are soothing while **valerian**, **hops** and **passionflower** are all mild sedatives, promoting sleep and helping to relieve tension. **Chamomile** is known for its calming effect on muscles and **skullcap** is often used as a mild tranquilliser. **Wild jujube**, a Chinese herb, is taken by some to help combat restlessness and insomnia, while **Californian poppy** is used as a natural pacifier and sedative.

Melatonin is a natural hormone found in all living creatures and plays a role in the regulation of our circadian rhythm, or body clock. Supplements can be useful in treating sleep disorders – such as jet lag – by helping to adjust to normal sleeping patterns.

SynPharma can supply these as ingredients for supplements or in finished dosage forms – please contact us for more details.

RAW materials

Valerian

Used as an anti-anxiety herb and sleep aid since the days of the Romans, valerian appears to work in a similar way to prescription tranquillisers to create a feeling of calmness.

Valerian taken before going to bed appears to reduce the time it takes to fall asleep and has been approved by the German Commission E for treating 'restlessness and sleeping disorders brought on by nervous conditions.' It is often taken as a mild tranquilliser in combating short-term anxiety, nervousness and insomnia.

In one placebo-controlled trial of 27 people with insomnia, Swedish researchers found that 89 per cent of those who were given valerian reported improved sleep. The herb is thought to work by blocking brain receptors for the neurotransmitter gamma-aminobutyric acid (GABA), helping stop stress-related messages from reaching the brain.

Kudzu

Native to southern Japan and southeast China, kudzu is a fast-growing vine and its reputation as a herbal medicine has been backed by scientific research. Studies at Harvard Medical School have shown that kudzu can reduce both hangovers and alcohol cravings, making it a useful treatment for alcoholism. It's not known exactly how it works, but it may help metabolise alcohol as well as act on the reward area in the brain.

Kudzu is also thought to have anti-inflammatory, anti-cancer and analgesic properties and could be a mood enhancer through its effect on the brain's neurotransmitters. Practitioners of Chinese medicine use kudzu to treat a range of conditions, including excessive thirst, headaches, high blood pressure, angina, diarrhoea, allergies, migraines and headaches.

5-HTP

A compound called 5-hydroxytryptophan, usually shortened to 5-HTP, is thought to help raise 'feel-good' serotonin levels in the brain, helping with mood, anxiety and pain problems. The body normally makes its own supply of 5-HTP from tryptophan, an amino acid found in high-protein foods. The 5-HTP used in dietary supplements is extracted from the seeds of the African plant, *Griffonia simplicifolia*.

Supplementation with 5-HTP is thought to help with depression, panic attacks and anxiety, as well as combat insomnia and ease the pain of migraines – these headaches have been linked with low serotonin levels. The compound also has a reputation for promoting weight loss by curbing the appetite and reducing cravings for sweet or starchy foods. A host of studies have added weight to the claims made about 5-HTP as researchers discover its potential and mechanisms.



Beetroots: could cut blood pressure thanks to nitrate content

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to warding off vascular problems such as kidney, retina and nerve damage as well as heart disease and stroke. It works by helping protect cells against the effect of high glucose levels.

Trials are now being carried out to see if supplements can help restore thiamine levels. Previous research showed that vitamin C can also help with diabetes complications by helping to mop up damaging free radicals, which are over-produced in diabetes patients.

Omega-3 allergy protection

Women who take fish oils rich in omega-3 during pregnancy and breastfeeding have children with far fewer allergy problems than other youngsters, according to researchers.

In a double-blind study at Linköping University in Sweden, children whose mothers had been given fish oil supplements had less than half as many allergic reactions to eggs than those whose mothers were given a placebo. Egg allergy early in life is linked with the later development of allergic disorders like eczema and asthma.

A total of 145 women took part in the study – half were given fish oil with high levels of omega-3 fatty acids from the 25th week of pregnancy through the third month of nursing, and the other half had a soybean oil placebo. The women given fish oil had lower blood prostaglandin E2 levels. This is a substance that triggers allergic responses, and levels are lower when the concentration of omega-3 increases.

Lead researcher Malin Fagerås Böttcher said: "We have been able to show that omega-3 influences the mother's immunological profile in a less inflammatory direction. Theoretically this can also affect the child's immune system."

Beetroots 'cut blood pressure'

Drinking 500ml of beetroot juice a day could help reduce blood pressure significantly, according to researchers.

Scientists at the UK's London School of Medicine and Peninsula Medical School said that in healthy volunteers blood pressure was reduced within an hour of drinking the juice and the effect continued for up to 24 hours. Previously the protective effect of vegetables has been attributed to high antioxidant vitamin content, but the researchers behind the latest study said the key beneficial ingredient appeared to be nitrate.

The nitrate in the juice was converted by bacteria on the tongue into nitrite and this is then swallowed in saliva – the scientists noted that the peak time of reduction in blood pressure coincided with peak levels of nitrite in the blood.

Lead researcher Professor Amrita Ahluwalia said: "Our research suggests that drinking beetroot juice, or consuming other nitrate-rich vegetables, might be a simple way to maintain a healthy cardiovascular system."

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

Diabetes vitamin deficiency

People with diabetes could be suffering health problems because of a B-vitamin deficiency, a new study has suggested.

Researchers from Warwick University studied a group of diabetes sufferers and discovered they expelled thiamine - vitamin B1 - from their bodies 15 times faster than normal. The scientists say that thiamine could help combat

problems such as heart disease and eye problems in diabetes sufferers. According to the journal *Diabetologia*, it is the first time a deficiency of the vitamin, normally found in meat, yeast and grains, has been identified in diabetics.

The team measured thiamine levels in blood plasma and found concentrations were 76 per cent lower in people with type 1 diabetes and 75 per cent lower in people with type 2. Thiamine is key