The mood food connection

Lara Just, a stress management coach, psychotherapist and clinical nutritionist, discusses how nutrition could help increase our resilience and regain control over our mental health and well-being

Continuous stress causes changes in our body's biochemistry, affecting the natural balance of certain hormones and brain chemicals. When our moods are affected, this can have an impact on our lifestyle and dietary choices and become a vicious downward spiral, affecting long-term psychological and emotional health and well-being.

In the fourth article of our complementary therapies and mental health series, Lara discusses how, by taking control over some of our dietary and lifestyle choices, we can make changes, step-by-step, to improve our health and well-being.

Armed with optimal support

Stress impacts both physical and mental health: it not only affects our gastrointestinal, cardiovascular, reproductive and immune systems, but can also have an impact on concentration, memory, emotional balance and sleep, making us more susceptible to illness.

Prolonged stress is linked to an increased risk of accidents, and conditions such as anxiety and depression, as well as heart disease, obesity, auto-immune conditions, diabetes, psychiatric illness, premature ageing and low immunity.[1-6]

While some stressors can be avoided, others cannot as they may be beyond our control. It is important to be armed with optimal support for improved resilience and a more balanced stress response. One of the key aspects we can control is what we eat and put into our bodies. Nutrition can affect our energy levels, immune health and overall well-being, with increasing evidence of its role in mental health.[7,8]

Fresh food first

A study that investigated the link between overall diet and mental health, rather than individual foods, revealed that eating an unhealthy diet increased the chances of becoming depressed by almost 60 per cent. What's more, out of the 3,500 middle-aged participants, those who ate the most whole foods or a diet rich in fresh vegetables, fruit and fish, were 26 per cent less likely to report depression symptoms.[8]

Foods have thousands of chemical complexes in their 'food matrix' that our bodies have evolved with over the millennia. Some experts believe that fresh organic food has a different, subtle energetic potential compared with certain processed and packaged foods found in many supermarkets and fast-food restaurants. Today, it is possible to learn about making different foods by joining a local cooking class; growing community or allotment scheme; trying out new recipes;* or using box schemes that source fresh organic produce from UK farms (such as www.riverford.co.uk, www.abelandcole.co.uk, and www.growingcommunities.org/organic-box-scheme).

For those with limited time for preparing food, there are now healthier ready-made snacks and meals available that can be delivered to your office or home (take a look at sites such as www.graze.com/uk, www.eatevolve.com, www.nutrichef.co.uk and www.purepackage.com).

Taking control

There are some basic nutritional guidelines that can help increase our resilience:

Control blood sugar levels: Eating regular meals helps to stabilise blood sugar levels, ie. three main meals and two snacks per day. Ideally, every meal should contain at least half a plate of vegetables and fruit, a quarter of lean protein (fish, poultry, dairy, some lean meat, lentils, legumes, nuts and seeds), and a quarter of complex carbohydrates (wholegrains), plus some good fats (nuts, seeds, fish, olive oils). Unrefined carbohydrates such as wholegrain rice and pasta can help control blood sugar-related stress and mood swings. Other complex carbohydrates include oats, quinoa, buckwheat, millet, rye, barley and amaranth. Adding extra cinnamon to your foods helps to stabilise blood sugar too.

Boost energy: Wholegrains, fish, nuts, seeds and dairy products (limit these to predominantly plain yoghurt, some organic

Foods rich in nutrients that support a healthier stress response	
B-complex vitamins	wholegrains, meat, offal (liver), fish, brewer's yeast, almonds, eggs, dairy, sprouts, seeds, miso, green leafy vegetables
B1	Soybeans, brown rice, sunflower seeds, peanuts, brewer's yeast, wheat germ, mixed nuts (Brazil nuts, pecans), legumes, lentils, millet, buckwheat, oatmeal, wholegrains, most vegetables (especially green and yellow), milk, seafood. NB: Cooking heat easily destroys B1
B5	Liver and organ meats, bran (rice, wheat), sunflower seeds, whey powder, mushrooms (e.g. shiitake, crimini), caviar, cheese, sun-dried tomatoes, fish (oily, e.g. Atlantic salmon), avocados, yoghurt, peanuts, peas, soya beans, brown rice, meat, wholegrains, wheat germ, green vegetables, brewer's yeast, nuts, poultry, legumes
B6	Brewer's yeast, sunflower seeds, wheat germ, soybeans, walnuts, soybean flour, lentils, lima beans, buckwheat flour, black-eyed peas, navy beans, brown rice, hazelnuts, garbanzos, pinto beans, bananas, avocados, wholemeal flour, chestnuts, kale, rye flour, spinach, turnip greens, peppers (sweet), potatoes, prunes, raisins, sprouts, barley, sweet potatoes, cauliflower
C	Broccoli, peppers, potatoes, sprouts, chillis, acerola cherries, guavas, kale, parsley, watercress, cauliflower, cabbage (red), strawberries, papayas, spinach, oranges and other citrus fruits, elderberries, mangoes, asparagus, dark green leafy vegetables
D	Cod liver oil, butter (organic 'summer' butter, or fortified), oily fish (herring, kippers, salmon, mackerel, pilchards, sardines, tuna), fish roe, full-fat dairy products, fortified cereals, eggs
Zinc	Best sources are seafood (particularly fresh oysters), red meat and cheese. Other foods containing varying levels of zinc include pumpkin seeds, ginger root, pecans, split peas, Brazil nuts, wholemeal, rye, oats, peanuts, lima beans, almonds, walnuts, buckwheat, hazelnuts, green peas, turnips, parsley, potatoes, garlic, carrots, wholemeal bread, black beans.
Magnesium	Dark leafy vegetables, kelp, sea vegetables, nuts, seeds, brown rice, beans and wholegrains.
Omega-3 fatty acids	The best sources are oily fish (salmon, trout, herring, mackerel, anchovies, sardines, pilchards). Other sources include flaxseeds, flaxseed oil, walnuts, hemp and pumpkin seeds, soya beans, tofu, kelp, dark leafy vegetables, eggs (organic, free-range, omega-3)
Probiotics	Organic plain yoghurt, kefir, kombucha and other fermented foods such as sauerkraut, miso, tempeh, kimchi

NB. Portion sizes will vary depending on the individual with regard to weight control; professional advice should always be sought if unsure.

milk and a little cheese) are rich in B vitamins that are essential in the vital energy production during stress.

Increase protein: Good protein sources include organic lean meats, poultry, oily fish (three servings per week), eggs and plant sources (beans, lentils, soy – no more than two to three portions of soy per week). Protein provides important building blocks for the hormones and neurotransmitters involved in regulating mood and stress response.

Love good fats: Omega-3 fatty acids, found in oily fish, can positively influence brain chemistry (60 per cent of our brains are made of 'good' fats). Aim for three portions of oily fish (salmon, trout, herring, pilchards, anchovies) per week, plus at least one handful of mixed nuts and seeds per day (pumpkin, sesame, sunflower, linseed, hemp, almonds, walnuts, hazelnuts, Brazil nuts).

Eat a rainbow every day: A diet rich in colours from vegetables and fruits is likely to contain more antioxidants, especially dark green leafy vegetables, ie. watercress, kale, spinach, and dark-coloured fruits such as berries. Antioxidants can help decrease the load of oxidative damage in the body caused by the stress response. Aim for two to three pieces of fruit and at least seven portions** (or more) of lightly-cooked and raw different non-starchy vegetables (including fresh herbs). Soups can help increase intake.

Help the 'happy hormones': The amino acid tryptophan, found in turkey, chicken, game, cottage cheese, bananas and dark chocolate, can help boost the production of serotonin (the 'feel good' hormone) and melatonin (promotes sleep). However, important additional nutrients, such as zinc and vitamin B6, from food are required to help their conversion from tryptophan in the body.

Keep hydrated: Drink at least 1.5 litres of fresh clean (filtered or mineral) water, or herbal and green teas, daily.

Limit:

Caffeine: found in coffee, tea and chocolate. These stimulants create an adrenaline release – similar to a stress response – and can affect sleep.[9] Reduce intake gradually to prevent withdrawal symptoms.

Smoking: can further deplete vitamin C (already depleted by the stress response).

Sugar: refined sugar snacks can contribute to blood sugar peaks and falls, which increase the stress response.

Alcohol: although often used as an anti-stress solution, it can stress the body (like smoking) by stimulating adrenaline production and increasing the toxic load on the liver and body.

Salt: raises blood pressure further if already elevated due to stress.

A more balanced stress response

There are a number of key supplements and nutrient formulas that can assist the body in adapting to stress for a healthier, more balanced stress response. Nutrients can be increased by eating more nutrient-rich foods or by taking a good-quality supplement (multi-vitamin and mineral, B-complex mix or as separate supplements) alongside a well-balanced diet as a short-term therapeutic approach.

A nutritional therapist can provide advice on a sustainable, personalised formula, and can check – and provide specialist support – for pre-existing nutrient deficiencies or imbalances, and those impacted on by adrenal stress, ie. gut dysbiosis, intestinal permeability or other inflammatory conditions. Nutrient deficiencies and adrenal and gut function can be tested via clinical analyses with reputable medical laboratories. Professional advice is essential for choosing supplements when on medication, such as blood-thinning drugs.[38]

Key nutrients that can be particularly supportive:

- **Antioxidant complex:** during stress, extra toxins known as free radicals are created, which need to be neutralised by nutrients such as vitamins C, A, E and minerals such as zinc and selenium. Depleted during times of high stress, vitamin C is required, with magnesium and pantothenic acid (B5),[10] for the production of cortisol and adrenal hormones,[11,12] and neurotransmitters that help to convert tryptophan to serotonin.[13,14]
- **B-complex vitamins (especially B1, B5 and B6):** B-vitamins are needed in small amounts for good adrenal function and to support the chemical reactions that produce energy from food. During stress, the body requires more B-vitamins, particularly B5 (pantothenic

acid) for adrenal function as well as neuromuscular reactions, attention, memory and learning.[15-20]

- **Magnesium:** becomes depleted during stress, heavy exercise and toxic exposure. Symptoms of a deficiency often include fatigue, anxiety, insomnia, PMS, mood swings, and low resilience to stress. Magnesium is needed for many metabolic and enzymatic reactions; adrenal function, together with Vitamin C and B5;[21] and blood sugar balance.[22,23] It can also help relax tense muscles.
- **Vitamin D:** is often lower during autumn and winter due to the lack of sunshine. It is quite difficult to get sufficient amounts of this nutrient via food and many people in the UK are deficient. It can help with mood over the winter months, immunity, and much more.[24]
- **Probiotics:** live bacteria can help to support gastrointestinal balance and immunity, which are frequently disturbed during stress.[25-29]
- **Zinc:** is depleted by stress and illness, potentially increasing vulnerability to infections. It is important in adrenal function, immunity, and is involved in the manufacture of various hormones and neurotransmitters.[30-32]
- **Omega-3 fatty acids (EPA and DHA):** have demonstrated clinical efficacy in improving stress and mood disorders in adults and children.[33-37]

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***Recipe books**

- *Bailey C (2009). The Top 100 Recipes for Brainy Kids. London: Duncan Baird Publishers.*
- *Gedgaudas NT (2011). Primal Body, Primal Mind: The Secrets of the Paleo Diet and New Discoveries in Brain and Longevity Science. USA: Healing Arts Press.*
- *Holford P and McDonald JF (2008). Food Glorious Food: Incredibly Delicious Low-GL Recipes for Friends and Family. UK: Piatkus Books.*
- *Marsden K and Whitmore M (2013). Fitter Food: A Lifelong Recipe. UK: Blue Print Publishing. (www.fitterlondon.co.uk/fitter-food)*
- *Nicolle L and Bailey C (2013). The Functional Nutrition Cookbook: Addressing Biochemical Imbalances Through Diet. London: Singing Dragon. pp.123.*

****A portion in this context is roughly 60g or a medium size apple. For further information, visit www.nhs.uk/Livewell/5ADAY**

References

1 CIPD - The Chartered Institute of Personnel and Development (2013). *Employee Outlook Focus on culture change and patient care in the NHS*. Autumn 2013. Accessed 28 September 2013. Available at: www.cipd.co.uk/research/_employee-outlook

2 McEwen BS (1998). Protective and damaging effects of stress mediators, *New England Journal of Medicine* **338**(3): 171-179.

3 McEwen BS (2006). Protective and damaging effects of stress mediators: central role of the brain, *Dialogues in Clinical Neuroscience* **8**(4): 367-81.

4 McEwen BS (2008). Central effects of stress hormones in health and disease: Understanding the protective and damaging effects of stress and stress mediators, *European Journal of Pharmacology* **583**(2-3): 174-85.

5 Van Praag HM (2004). Can stress cause depression, *Progress in Neuro-Psychopharmacology and Biological Psychiatry* **28**(5): 891-907.

6 Childre D and Rozman D (2005). *Transforming Stress: The HeartMath® Solution for Relieving Worry, Fatigue and Tension*. US: New Harbinger Publications.

7 Food and Health Forum (2008). *The links between diet and behavior: the influence of nutrition on mental health. Report of an inquiry held by the Associate Parliamentary Food and Health Forum*. Accessed 11 October 2013. Available at: www.fhf.org.uk/meetings/inquiry2007/FHF_inquiry_report_diet_and_behaviour.pdf

8 Akbaraly TN, Brunner EJ, Ferrie JE et al (2009). Dietary pattern and depressive symptoms in middle age, *British Journal of Psychiatry* **195**(5): 408-13.

9 Shilo L et al (2002). The effects of coffee consumption on sleep and melatonin secretion, *Sleep Medicine* **3**(3): 271-3.

10 Lukaski HC (2000). Magnesium, zinc, and chromium nutriture and physical activity, *American Journal of Clinical Nutrition* **2**: 585S-93S.

11 Patak P, Willenberg HS and Bornstein SR (2004). Vitamin C is an important cofactor for both adrenal cortex and adrenal medulla, *Endocrine Research* **30**(4): 871-5.

12 Nicolle L and Woodriff BA (2010). *Biochemical Imbalances in Disease: A Practitioner's Handbook*. UK: Singing Dragon.

13 Braun L and Cohen M (2005). *Herbs and Natural Supplements*. Elsevier: Australia Marrickville, NSW.

14 Peters EM, Anderson R, Nieman DC et al (2001). Vitamin C supplementation attenuates the increases in circulating cortisol, adrenaline and anti-inflammatory polypeptides following ultramarathon running, *International Journal of Sports Medicine* **7**: 537-43.

15 Murray MT (1996). *Encyclopedia of Nutritional Supplements*. USA: Prima Health.

16 Roberts AJ et al (2001). Nutraceuticals: *The Complete Encyclopedia of Supplements, Herbs, Vitamins and Healing Foods*. USA: Berkely Publishing Group.

17 Vinogradov VV et al (1981). Thiamine prevention of the corticosteroid reaction after surgery, *Problemy Endokrinologii* **27**: 11-16.

18 Braun L and Cohen M (2005). *Herbs and Natural Supplements*. Elsevier: Australia Marrickville, NSW.

19 Wisneski LA (2000). *The Professional Reference to Conditions, Herbs and Supplements. Integrative Medicine Communications.*

20 Kelly GS (1999). Nutritional and botanical interventions to assist with the adaptation to stress, *Alternative Medicine Review* **4**(4): 249-265.

21 Lukaski HC (2000). Magnesium, zinc, and chromium nutriture and physical activity, *American Journal of Clinical Nutrition* **2**: 585S-93S.

22 Paolisso G and Barbagallo M (1997). Hypertension, diabetes mellitus, and insulin resistance: the role of intracellular magnesium, *American Journal of Hypertension* **10**(3): 346-55.

23 Rosolova H, Mayer OJ and Reaven GJ (1997). Effect of variations in plasma magnesium concentration on resistance to insulin-mediated glucose disposal in nondiabetic subjects, *Journal of Clinical Encocrinology and Metabolism* **82**(11): 3783-5.

24 Hypponen E and Power C (2007). Hypovitaminosis D in British adults at age 45 y: nationwide cohort study of dietary and lifestyle predictors, *American Journal of Clinical Nutrition* **85**: 860-868.

25 Dinan TG and Cryan JF (2013). Melancholic microbes: a link between gut microbiota and depression?, *Neurogastroenterology and Motility* **25**(9): 713-9.

26 Campbell-McBride N (2010). *Gut and Psychology Syndrome*. Cambridge: Medinform Publishing.

27 Lutgendorff F, Akkermans LM and Söderholm JD (2008). The role of microbiota and probiotics in stress-induced gastro-intestinal damage, *Current Molecular Medicine* **8**(4): 282-98.

28 Gruenwald J, Graubaum HJ and Harde A (2002). Effect of a probiotic multivitamin compound on stress and exhaustion, *Advances in Therapy* **19**(3): 141-50.

29 Isolauri E, Sütas Y, Kankaanpää P et al (2001). Probiotics: effects on immunity, *American Journal of Clinical Nutrition* **73**(2): 444S-450S.

30 Birdsall TC (1998). 5-Hydroxytryptophan: a clinically-effective serotonin, *Alternative Medicine Review* **3**(4): 271-80.

31 Singh M and Das RR (2013). Zinc for the common cold, *Cochrane Database Systematic Review* **6**:CD001364.

32 Braun L and Cohen M (2005). *Herbs and Natural Supplements*. Elsevier: Australia Marrickville, NSW.

33 Kelly GS (1999). Nutritional and botanical interventions to assist with the adaptation to stress, *Alternative Medicine Review* **4**(4): 249-265.

34 Qureshi NA and Al-Bedah AM (2013). Mood disorders and complementary and alternative medicine: a literature review, *Neuropsychiatric Disease and Treatment* **9**: 639-58.

35 Kiecolt-Glaser JK, Belury MA, Andridge R et al (2011). Omega-3 supplementation lowers inflammation and anxiety in medical students: a randomized controlled trial, *Brain, Behavior, and Immunity* **25**(8): 1725-34.

36 Osher Y and Belmaker RH (2009). Omega-3 fatty acids in depression: a review of three studies, *CNS Neuroscience and Therapeutics* **15**(2): 128-33.

37 Bourre JM (2005). Dietary omega-3 Fatty acids and psychiatry: mood, behaviour, stress, depression, dementia and aging, *Journal of Nutrition Health and Aging* **9** (1): 31-8.

38 Delarue J, Matzinger O, Binnert C et al (2003). Fish oil prevents the adrenal activation elicited by mental stress in healthy men, *Diabetes and Metabolism* **3**: 289-95.

39 Gaby AR (2006). *A-Z Guide to Drug-Herb-Vitamin Interactions (2nd Edition)*. Healthnotes Medical Team. USA: Three Rivers Press.

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