References Nutrition I-Mag Nov/Dec

Ingredient spotlight:

Bone, K & Mills, S, Principles and Practice of Phytotherapy, 2nd Ed., 2013, Churchill Livingstone Elsevier

Chandrasekhar K, et al, A prospective randomised double-blind, placebo-controlled study of safety and efficacy of high concentration full spectrum extract of ashwaganda root in reducing stress and anxiety in adults, Indian J Psychol. Med., 2012, Vol.34, pp.255-262

Kelani et al, ashwaganda root in the treatment of non-classical adrenal hyperplasia, 2012, BMJ Case Rep., 17. Pii: bcr2012006898

Malik F, et al, A standardised root extract of Withania somnifera and its major constituent withanolide-Aelicit humoral and cell-mediated immune responses by up regulation of Th1 dominant polarisation in BALB, 2007, Life Sci., Vol.80(16), pp.1525-1538

Mirjalili, M et al, Steroidal lactones from Withania somnifera, an ancient plant for novel medicine, 2009, Molecules, Vol.14(7), pp.2373-2393

Panda S, et al, Changes to thyroid hormone concentrations after administration of ashwaganda root extract to adult male mice, 1998, J. Pharm. Pharmacol., Vol.50(9), pp.1065-1068

Rasool, M, Suppressive effect of Withania somnifera root powder on experimental gouty arthritis: an in vivo and in vitro study, 2006, Chem. Biol. Interact., Vol.164(3), pp.174-180

Singh D et al, Withania somnifera inhibits NF-kappaB and AP-1 transcription factors in human peripheral blood and synovial fluid mononuclear cells, 2007, Phytother. Res., Vol.21(10), pp.905-913

Staner, L, Sleep and anxiety disorders, 2003, Dialogues in Clinical Neuroscience, Vol.5(3), pp.249-258

Sleep feature:

1. Choices N. Snoring - NHS Choices [Internet]. Department of Health; (no date) [cited 2016 Oct 11]. Available from: http://www.nhs.uk/conditions/snoring/Pages/Introduction.aspx
2. Sleep Apnoea Trust Downloadable Leaflets, Forms and Newsletter - Sleep Apnoea Trust [Internet]. Available from: http://www.sleep-apnoea-trust.org/sleep-apnoea-trust-downloadable-leaflets-forms-newsletter/
3. Choices N. Insomnia - Causes - NHS Choices [Internet]. Department of Health; (no date) [cited 2016 Sep 30]. Available from: http://www.nhs.uk/Conditions/Insomnia/Pages/Introduction.aspx
4. Choices N. Restless legs syndrome - NHS Choices [Internet]. Department of Health; (no date) [cited 2016 Oct 11]. Available from: http://www.nhs.uk/conditions/Restless-leg-syndrome/Pages/Introduction.aspx
5. The Great British Bedtime Report [Internet]. Skipton, UK; 2013 [cited 2016 Oct 11]. Available from: http://www.sleepcouncil.org.uk/wp-content/uploads/2013/02/The-Great-British-Bedtime-Report.pdf
6. Hoevenaar-Blom MP, Spijkerman AMW, Kromhout D, Verschuren WMM. Sufficient sleep duration contributes to lower cardiovascular disease risk in addition to four traditional lifestyle factors: the MORGEN

study. Eur J Prev Cardiol. 2014 Nov;21(11):1367–75.
7. Straif K, Baan R, Grosse Y, Secretan B, El Ghissassi F, Bouvard V, et al. Carcinogenicity of shift-work, painting, and fire-fighting. Lancet Oncol. 2007 Dec;8(12):1065–6.
8. Möller-Levet CS, Archer SN, Bucca G, Laing EE, Slak A, Kabiljo R, et al. Effects of insufficient sleep on circadian rhythmicity and expression amplitude of the human blood transcriptome. Proc Natl Acad Sci U S A [Internet]. 2013 Mar 19 [cited 2016 Oct 11];110(12):E1132-41. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3607048
9. Grandner MA, Jackson N, Gerstner JR, Knutson KL. Dietary nutrients associated with short and long sleep duration. Data from a nationally representative sample. Appetite. 2013;64:71–80.
10. Burke TM, Markwald RR, McHill AW, Chinoy ED, Snider JA, Bessman SC, et al. Effects of caffeine on the human circadian clock in vivo and in vitro. Sci Transl Med. 2015;7(305).
11. McNamara JPH, Wang J, Holiday DB, Warren JY, Paradoa M, Balkhi AM, et al. Sleep disturbances associated with cigarette smoking. Psychol Health Med. 2014 Jul 4;19(4):410–9.
12. Ebrahim IO, Shapiro CM, Williams AJ, Fenwick PB. Alcohol and Sleep I: Effects on Normal Sleep. Alcohol Clin Exp Res. 2013 Apr;37(4):539`-549.
13. Hargens TA, Kaleth AS, Edwards ES, Butner KL. Association between sleep disorders, obesity, and exercise: a review. Nat Sci Sleep [Internet]. 2013 [cited 2016 Sep 30];5:27–35. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3630986
14. Abbasi B, Kimiagar M, Sadeghniiat K, Shirazi MM, Hedayati M, Rashidkhani B. The effect of magnesium supplementation on primary insomnia in elderly: A double-blind placebo-controlled clinical trial. J Res Med Sci [Internet]. 2012 Dec [cited 2016 Oct 11];17(12):1161–9. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3703169
15. Tatsuki F, Sunagawa GA, Shi S, Susaki EA, Yukinaga H, Perrin D, et al. Involvement of Ca(2+)-Dependent Hyperpolarization in Sleep Duration in Mammals. Neuron [Internet]. 2016 Apr 6 [cited 2016 Oct 11];90(1):70–85. Available from: http://www.ncbi.nlm.nih.gov/pubmed/26996081
16. Jackson WF. Potassium Channels in Regulation of Vascular Smooth Muscle Contraction and Growth. In: Advances in Pharmacology. 2016.
17. Bent S, Padula A, Moore D, Patterson M, Mehling W. Valerian for sleep: a systematic review and meta-analysis. Am J Med [Internet]. 2006 Dec [cited 2016 Oct 1];119(12):1005–12. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC4394901
18. Kahn A, Mozin MJ, Rebuffat E, Sottiaux M, Muller MF. Milk intolerance in children with persistent sleeplessness: a prospective double-blind crossover evaluation. Pediatrics. 1989 Oct;84(4):595–603.

19. Hardeland R. Neurobiology, pathophysiology, and treatment of melatonin deficiency and dysfunction. ScientificWorldJournal [Internet]. 2012 [cited 2016 Oct 11];2012:640389. Available from: http://www.ncbi.nlm.nih.gov/pubmed/22629173
20. Järup L. Hazards of heavy metal contamination. Br Med Bull [Internet]. 2003 [cited 2016 Oct 11];68(1):167–82. Available from: http://www.ncbi.nlm.nih.gov/pubmed/14757716
21. Bidaki R, Zarei M, Khorram Toosi A, Hakim Shooshtari M. A review on genetics of sleep disorders. Iran J psychiatry Behav Sci [Internet]. 2012 [cited 2016 Oct 11];6(1):12–9. Available from: http://www.ncbi.nlm.nih.gov/pubmed/24644464
22. Dahle L 0, Berg G, Hammar M, Hurtig M, Larsson L. The effect of oral magnesium substitution on pregnancy-induced leg cramps.
23. Jacka FN, Overland S, Stewart R, Tell GS, Bjelland I, Mykletun A. Association between magnesium intake and depression and anxiety in community-dwelling adults: the Hordaland Health Study. Aust N Z J Psychiatry. 2009 Jan;43(1):45–52.
24. Singewald N, Sinner C, Hetzenauer A, Sartori SB, Murck H. Magnesium-deficient diet alters depression- and anxiety-related behavior in mice—influence of desipramine and Hypericum perforatum extract. Neuropharmacology. 2004;47(8):1189–97.
25. Abbasi B, Kimiagar SM, Mohammad-Shirazi M, Sadeghniiat K, Rashidkhani B, Karimi N, et al. Effect of Magnesium Supplementation on Physical Activity of Overweight or Obese Insomniac Elderly Subjects: A Double-Blind Randomized Clinical Trial. Zahedan J Res Med Sci. 2013;15(3):14–9.
26. Bates B, Lennox A, Prentice A, Bates C, Page P, Nicholson S, et al. National Diet and Nutrition Survey: Results from Years 1-4 (combined) of the Rolling Programme. 2008 [cited 2016 Oct 11]; Available from: www.gov.uk/phe
27. McCarty DE, Reddy A, Keigley Q, Kim PY, Marino AA. Vitamin D, race, and excessive daytime sleepiness. J Clin Sleep Med [Internet]. 2012 Dec 15 [cited 2016 Oct 1];8(6):693–7. Available from: http://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC3501666

IBS feature:

Shona Wilkinson:

(1) Tillisch K, Labus JS, Naliboff BD, et al. Characterization of the alternating bowel habit subtype in patients with irritable bowel syndrome. Am J Gastroenterol 2005;100:896–904.
(2) Whorwell PJ, McCallum M, Creed F, et al. Non-colonic features of irritable bowel syndrome. Gut 1986;27:37–40.
(3) Marshall JK, Thabane M, Garg AX, et al. Intestinal permeability in patients with irritable bowel syndrome after a waterborne outbreak of acute gastroenteritis in Walkerton, Ontario. Aliment Pharmacol Ther 2004;20:1317–22.
(4) Francis CY, Whorwell PJ. Bran and irritable bowel syndrome: time for eappraisal. Lancet 1994;344:39–40.

(5) Browning S M. Constipation, diarrhoea and irritable bowel syndroms. Prim Care 1999:26:113-39.

Caroline Harmer:

1. Ibid.
2. Spiegel BM, Chey WD, Chang L. Bacterial overgrowth and irritable bowel syndrome: unifying hypothesis or a spurious consequence of proton pump inhibitors? Am J Gastroenterol. 2008 Dec;103(12):2972-6.
3. Tungtrongchitr, et al., "Blastocystis hominis infection in irritable bowel syndrome patients." Southeast Asian J Trop Med Public Health. 2004 Sep;35(3):705-10. There may also be an overgrowth of yeast particularly Candida albicans. H. Santlemann and J.M. Howard, "Yeast metabolic products, yeast antigens and yeasts as possible triggers for irritable bowel syndrome."Eur J Gastroenterol Hepatol 2005 Jan;17(1):21-6.
4. Elizabeth Lipski, Digestive Wellness, Keats Publishing, Inc., 1996, p.238
5. Ibid.
6. Micheal Murray, ND and Joseph Pizzorno, ND, Encyclopedia of Natural Medicine, Revised Second Edition, Prima Health, 1998, p. 611.
7. Op cit., Lipski, p239.

Claire Barnes:

1 Distrutti E, Monaldi L, Ricci P, Fiorucci S. Gut microbiota role in irritable bowel syndrome: New therapeutic strategies. *World J Gastroenterol* 2016; 22: 2219–41.
2 Longstreth GF, Thompson WG, Chey WD, Houghton LA, Mearin F, Spiller RC. Functional bowel disorders. *Gastroenterology* 2006; 130: 1480–91.
3 Hayes P, Corish C, O'Mahony E, Quigley EMM. A dietary survey of patients with irritable bowel syndrome. *J Hum Nutr Diet* 2014; 27 Suppl 2: 36–47.
4 Tazzyman S, Richards N, Trueman AR, *et al.* Vitamin D associates with improved quality of life in participants with irritable bowel syndrome: outcomes from a pilot trial. *BMJ open Gastroenterol* 2015; 2: e000052.
5 Marsh A, Eslick EM, Eslick GD. Does a diet low in FODMAPs reduce symptoms associated with functional gastrointestinal disorders? A comprehensive systematic review and meta-analysis. *Eur J Nutr* 2016; 55: 897–906.
6 Guglielmetti S, Mora D, Gschwender M, Popp K. Randomised clinical trial: Bifidobacterium bifidum MIMBb75 significantly alleviates irritable bowel syndrome and improves quality of life--a double-blind, placebo-controlled study. *Aliment Pharmacol Ther* 2011; 33: 1123–32.
7 Aragon G, Graham DB, Borum M, Doman DB. Probiotic therapy for irritable bowel syndrome. *Gastroenterol Hepatol (N Y)* 2010; 6: 39–44.
8 Kajander K, Krogius-Kurikka L, Rinttilä T, Karjalainen H, Palva A, Korpela R. Effects of multispecies probiotic supplementation on intestinal microbiota in irritable bowel syndrome. *Aliment Pharmacol*

Ther 2007; 26: 463–73.
9 Quigley EMM. Probiotics in Irritable Bowel Syndrome: The Science and the Evidence. *J Clin Gastroenterol*; 49 Suppl 1: S60–4.
10 Yoon JS, Sohn W, Lee OY, *et al.* Effect of multispecies probiotics on irritable bowel syndrome: a randomized, double-blind, placebo-controlled trial. *J Gastroenterol Hepatol* 2014; 29: 52–9.

Anti-ageing feature:

Romina Melwani:

Sun J, Wang H, Ng TB. Isolation of a laccase with HIV-1 reverse transcriptase inhibitory activity from fresh fruiting bodies of the *Lentinus edodes* (Shiitake mushroom). Indian J Biochem Biophys. 2011 Apr;48(2):88-94.
El-Mekkawy, S., Meselhy, M.R., Nakamura, N., Tesuka, Y., Hattori, M., Kakiuchi, N., Shimotohno, K., Kawahata, T., and Otake, T., Anti-HIV and anti-HIV-protease substances from *Ganoderma lucidum*, Phytochemistry, 49, 1651–1657, 1998.

Jenny Bodenham:

(1) Josine E. Verhoeven, et al. Anxiety disorders and accelerated cellular ageing.The British Journal of Psychiatry May 2015, 206 (5) 371-378; **DOI:** 10.1192/bjp.bp.114.151027
(2) Solfrizzi V, et al.The role of diet in cognitive decline. Journal of Neural Transmission. 2003 Jan;110(1):95-110.
(3) Skoog I, Lernfelt B, Landahl S, Palmertz B, Andreasson LA, Nilsson L, Persson G, Oden A, Svanborg A (1996) 15-Year longitudinal study of blood pressure and dementia. Lancet 347: 1141–1145
(4) Ott A, Stolk RP, van Harskamp F, Pols HA, Hofman A, Breteler MM (1999) Diabetes mellitus and the risk of dementia: the Rotterdam Study. Neurology 53: 1937–1942
(5) Ott A, Breteler MM, de Bruyne MC, van Harskamp F, Grobbee DE, Hofman A (1997) Atrial fibrillation and dementia in a population-based study. The Rotterdam Study. Stroke 28: 316–321
(6) Crous-Bou, T. T. Fung, et al. Mediterranean diet and telomere length in Nurses' Health Study: population based cohort study. BMJ, 2014; 349 (dec02 5): g6674 DOI: 10.1136/bmj.g6674
(7) Vina J, Borras C, Miquel J. Theories of ageing. IUBMB Life. 2007;59(4–5):249–254.
(8) Ribero S. et al., Acne and telomere length. A new spectrum between senescence and apoptosis pathways. Journal of Investigative Dermatology DOI: http://dx.doi.org/10.1016/j.jid.2016.09.014
(9) Estruch R, Ros E, Salas-Salvadó J, et al. Primary Prevention of Cardiovascular Disease with a Mediterranean Diet. The New England Journal of Medicine. Published online February 25 2013

Jenny Hall:

[1] Dienke J. Bosa, Simone J.T. van Montfort, Bob Oranje, Sarah Durston, Paul A.M. Smeets. Effects of omega-3 polyunsaturated fatty acids on human brain morphology and function: What is the evidence? European Neuropsychopharmacology (2016) 26, 546–561.
[1] I. Denis, B. Potier, S. Vancassel, C. Heberdena, M. Lavialle. Omega-3 fatty acids and brain resistance to ageing and stress: Body of evidence and possible mechanisms. Ageing Research Reviews 12 (2013) 579–594.
[1] Davidovic M, Sevo G, Svorcan P, Milosevic DP, Despotovic N, Erceg P. Old age as a privilege of the "selfish ones." *Aging and Disease*. 2010;1(2):139-146.
[1] Simmons, D. (2008) Epigenetic influence and disease. *Nature Education* 1(1):6.
[1] Gemma C, Vila J, Bachstetter A, Bickford PC. Oxidative Stress and the Aging Brain: From Theory to Prevention. In: Riddle DR, editor. Brain Aging: Models, Methods, and Mechanisms. Boca Raton (FL): CRC Press/Taylor & Francis; 2007. Chapter 15.
[1] Tosato M, Zamboni V, Ferrini A, Cesari M. The aging process and potential interventions to extend life expectancy. *Clinical Interventions in Aging*. 2007;2(3):401-412.
[1] Franceschi C, Bonafè M, Valensin S, Olivieri F, De Luca M, Ottaviani E, De Benedictis G. Inflamm-aging. An evolutionary perspective on immunosenescence. Ann N Y Acad Sci. 2000 Jun;908:244-54.

Ask the experts:

Natalie Lamb:

1. Jones ML, Martoni CJ, Prakash S. Oral Supplementation With Probiotic L. reuteri NCIMB 30242 Increases Mean Circulating 25-Hydroxyvitamin D: A Post Hoc Analysis of a Randomized Controlled Trial. *J Clin Endocrinol Metab* 2013; **98**(7):2944-51.
2. Vighi G, Marcucci F, Sensi L, Di Cara G, Frati F. Allergy and the gastrointestinal system. *Clin Exp Immunol* 2008; **153** Suppl 1:3-6.
3. de Vrese M, Winkler P, Rautenberg P, Harder T, Noah C, Laue C, Ott S, Hampe J, Schreiber S, Heller K, Schrezenmeir J. 2005. Effect of Lactobacillus gasseri PA 16/8, Bifidobacterium longum SP 07/3, B. bifidum MF 20/5 on common cold episodes: a double blind, randomized, controlled trial. *Clin Nutr*. Aug;**24**(4):481-91.
4. Lutgendorff F, Akkermans LM, Soderholm JD. The Role of Microbiota and Probiotics in Stress-induced Gastro-intestinal Damage. *Current Molecular Medicine* 2008;**8**: 282-298.

Julie Lamble:

(1) International Journal of Food Sciences and Nutrition Vol. 67 (2016)
(2) EFSA Journal 2010; 8 (10) 1798