

References Nutrition I-Mag summer

Heart health feature:

James Pugh:

[bhf-cvd-statistics-uk-factsheet.pdf](#)

[Cardiovascular disease - NHS \(www.nhs.uk\)](#)

[How to Optimize Your Omega-6 to Omega-3 Ratio \(healthline.com\)](#)

[Gender differences in coronary heart disease - PMC \(nih.gov\)](#)

Keri Briggs:

Al Mheid I., Patel R., Murrow J., Morris A., Rahman A., Fike L., Kavtaradze N., Uphoff I., Hooper C., Tangpricha V., et al. Vitamin D Status Is Associated With Arterial Stiffness and Vascular Dysfunction in Healthy Humans. *J. Am. Coll. Cardiol.* 2011;58:186–192.

Alpert M.A. , Lavie C.J. , Agrawal H. Aggarwal K.B. and Kumar S.A. . Obesity and heart failure: epidemiology, pathophysiology, clinical manifestations, and management. *Transl Res*, 164 (2014), pp. 345-356

Al-Qattan K.K., Khan I., Alnaqeeb M.A., Ali M. Thromboxane-B2, prostaglandin-E2 and hypertension in the rat 2-kidney 1-clip model: a possible mechanism of the garlic induced hypotension. *Prostag. Leukotr. Ess.*, 64 (1) (2001), pp. 5-

Al-Qattan K.K., Thomson M., Al-Mutawa'a S., Al-Hajeri D., Drobiova H., Ali M. Nitric oxide mediates the blood-pressure lowering effect of garlic in the rat two-kidney, one-clip model of hypertension. *J. Nutr.*, 136 (3s) (2006), pp. 774s-

Ambrose JA, Barua RS. The pathophysiology of cigarette smoking and cardiovascular disease: an update. *J Am Coll Cardiol.* 2004 May 19;43(10):1731-7

Asdaq S.M., Inamdarb M.N. Potential of *garlic* and its active constituent, S-allyl cysteine, as antihypertensive and cardioprotective in presence of captopril *Phytomedicine.*, 17 (13) (2010), pp. 1016-1026

Baker C. Obesity Statistics Research Briefing. House of Commons Library. 2022

Barkas F, Nomikos T, Liberopoulos E, Panagiotakos D. Diet and Cardiovascular Disease Risk Among Individuals with Familial Hypercholesterolemia: Systematic Review and Meta-Analysis. *Nutrients.* 2020 Aug 13;12(8):2436.

Baszczuk A, Kopczynski Z. Hyperhomocysteinemia in patients with cardiovascular disease [Abstract] *Postepy Hig Med Dosw.* 2014;68:579.

BHF UK Factsheet August 2022

Calabresi L, Franceschini G. Lecithin:cholesterol acyltransferase, high-density lipoproteins, and atheroprotection in humans. *Trends Cardiovasc Med.* 2010;20(2):50–53.

Charach G, George J, Afek A, Wexler D, Sheps D, Keren G, Rubinstein A. Antibodies to oxidized LDL as predictors of morbidity and mortality in patients with chronic heart failure. *J Card Fail.* 2009 Nov;15(9):770-4.

Chiavaroli L, Viguiouk E, Nishi SK, Blanco Mejia S, Rahelić D, Kahleová H, Salas-Salvadó J, Kendall CW, Sievenpiper JL. DASH Dietary Pattern and Cardiometabolic Outcomes: An Umbrella Review of Systematic Reviews and Meta-Analyses. *Nutrients.* 2019 Feb 5;11(2):338.

Craig W.Y , Palomaki G.E and Haddow J.E . Cigarette smoking and serum lipid and lipoprotein concentrations: An analysis of published data. *BMJ*, 298 (1989), pp. 784-788

Curro M, Gugliandolo A, Gangemi C, Risitano R, Ientile R, Caccamo D. Toxic effects of mildly elevated homocysteine concentrations in neuronal-like cells. *Neurochem Res.* 2014;39:1485–95.

de Leiris J, de Lorgeril M, Boucher F. Fish oil and heart health. *J Cardiovasc Pharmacol.* 2009 Nov;54(5):378-384.

Earnest CP, Artero EG, Sui X, et al. Maximal estimated cardiorespiratory fitness, cardiometabolic risk factors, and metabolic syndrome in the Aerobics Center Longitudinal Study. *Mayo Clin Proc.* 2013;88(3):259–270

Ettehad D, Emdin CA, Kiran A, Anderson SG, Callender T, Emberson J, Chalmers J, Rodgers A, Rahimi K. Blood pressure lowering for prevention of cardiovascular disease and death: a systematic review and meta-analysis. *Lancet.* 2016 Mar 5;387(10022):957-967.

Faeh D, Chiolero A, Paccaud F. Homocysteine as a risk factor for cardiovascular disease: should we (still) worry about it? *Swiss Med Wkly.* 2006;136:745–56.

Frayn KN, Karpe F, Fielding BA, Macdonald IA, Coppack SW. Integrative physiology of human adipose tissue. *Int J Obes Relat Metab Disord.* 2003;27(8):875–888. doi:10.1038/sj.ijo.0802326

Fusegawa Y, Goto S, Handa S, Kawada T and Ando Y. Platelet spontaneous aggregation in platelet-rich plasma is increased in habitual smokers. *Thromb Res,* 93 (1999), pp. 271-278

Gebhardt, R. (2002). Inhibition of cholesterol biosynthesis in HepG2 cells by artichoke extracts is reinforced by glucosidase pretreatment. *Phytother Res.* 16:368–72.

Glantz SA, Parmley WW. Passive smoking and heart disease: epidemiology, physiology, and biochemistry. *Circulation* 1991;83:1–12.

Hallikainen M, Kolehmainen M, Schwab U, Laaksonen DE, Niskanen L, Rauramaa R, Pihlajamäki J, Uusitupa M, Miettinen TA, Gylling H. Serum adipokines are associated with cholesterol metabolism in the metabolic syndrome. *Clin Chim Acta.* 2007 Aug;383(1-2):126-32

Halliwell B. Free radicals and antioxidants: A personal view. *Nutr Rev.* 1994;52:253–265.

Hariri E, Kassis N, Iskandar JP, Schurgers LJ, Saad A, Abdelfattah O, Bansal A, Isogai T, Harb SC, Kapadia S. Vitamin K₂-a neglected player in cardiovascular health: a narrative review. *Open Heart.* 2021 Nov;8(2)

Hasegawa A, Toshima S, Nakano A, Nagai R. [Oxidized LDL in patients with coronary heart disease and normal subjects]. *Nihon Rinsho.* 1999 Dec;57(12):2754-8.

Heitzer T, Yla-Herttuala S, Luoma J *et al.* Cigarette smoking potentiates endothelial dysfunction of forearm resistance vessels in patients with hypercholesterolemia: Role of oxidized LDL. *Circulation,* 9 (1996), pp. 1346-1353

HSIS. State of the Nation: Dietary Trends in the UK 20 Years On. 2019. <https://www.hsis.org/wp-content/uploads/2019/08/HSIS-report-2019-artwork-screen-res.pdf>

Iwamoto T, Hosoda K, Hirano R, Kurata H, Matsumoto A, Miki W, Kamiyama M, Itakura H, Yamamoto S, Kondo K. Inhibition of low-density lipoprotein oxidation by astaxanthin. *J Atheroscler Thromb.* 2000;7:216–222.

Kamal-Eldin A, Moazzami A. Plant sterols and stanols as cholesterol-lowering ingredients in functional foods. *Recent Pat Food Nutr Agric.* 2009 Jan;1(1):1-14.

Kannel W.B, D'Agostino R.B and Belanger A.J. Fibrinogen, cigarette smoking, and risk of cardiovascular disease: Insights from the Framingham Study. *Am Heart J,* 113 (1987), pp. 1006-1010

Karppanen H, Mervaala E. Sodium intake and hypertension. *Prog Cardiovasc Dis*. 2006 Sep-Oct;49(2):59-75.

Kennedy EP, Lehninger AL 1949. Oxidation of fatty acids and tricarboxylic acid cycle intermediates by isolated rat liver mitochondria. *J Biol Chem* 179: 957–972

Langsjoen P, Langsjoen P, Willis R, Folkers K. Treatment of essential hypertension with coenzyme Q10. *Mol Aspects Med*. 1994;15 Suppl:S265-72.

Law MR, Morris JK, Wald NJ. Environmental tobacco smoke exposure and ischaemic heart disease: an evaluation of the evidence. *BMJ* 1997;315:973–80.

LeBlanc MJ, Brunet S, Bouchard G, Lamireau T, Yousef IM, Gavino V, Lévy E, Tuchweber B. Effects of dietary soybean lecithin on plasma lipid transport and hepatic cholesterol metabolism in rats. *J Nutr Biochem*. 2003 Jan;14(1):40-8.

Lee J.H., Gadi R., Spertus J.A., Tang F., O’Keefe J.H. Prevalence of vitamin D deficiency in patients with acute myocardial infarction. *Am. J. Cardiol*. 2011;107:1636–1638. doi: 10.1016/j.amjcard.2011.01.048.

Lioutas VA, Ivan CS, Himali JJ, Aparicio HJ, Leveille T, Romero JR, Beiser AS, Seshadri S. Incidence of Transient Ischemic Attack and Association With Long-term Risk of Stroke. *JAMA*. 2021 Jan 26;325(4):373-381.

Lira F, Yamashita A, Uchida M, et al. Low and moderate, rather than high intensity strength exercise induces benefit regarding plasma lipid profile. *Diabetol Metab Syndr*. 2010;2:31.

Masaaki.I. Noriko F, Keitaro N, Ryo M, Hozumi T, Sawako H, Yoko T, Koji N, Mitsunori N, Yoshikazu Y. Efficacy and safety of eight-week treatment with astaxanthin in individuals screened for increased oxidative stress burden, *ANTI-AGING MEDICINE*, 2009, Volume 6, Issue 4, Pages 15-21

Mackenbach JP, Damhuis RA, Been JV. De gezondheidseffecten van roken [The effects of smoking on health: growth of knowledge reveals even grimmer picture]. *Ned Tijdschr Geneesk*. 2017;160:D869.

Mancia G, Scopelliti F, Grassi G. Hypertension and the Heart. *Seminars in Cardiothoracic and Vascular Anesthesia*. 2006;10(3):198-202. doi:[10.1177/1089253206291315](https://doi.org/10.1177/1089253206291315)

Maoka T, Tokuda H, Suzuki N, Kato H, Etoh H. Anti-oxidative, anti-tumor-promoting, and anti-carcinogenesis activities of nitroastaxanthin and nitrolutein, the reaction products of astaxanthin and lutein with peroxynitrite. *Mar Drugs*. 2012;10:1391–1399.

[Markin AM et al. Effects of pro-inflammatory cytokines on cholesterol accumulation in monocyte cell line culture. *Atherosclerosis*. 2020:315](#)

Martínez-González MA, Gea A, Ruiz-Canela M. The Mediterranean Diet and Cardiovascular Health. *Circ Res*. 2019 Mar;124(5):779-798.

Mathew BC, Prasad NV and Prabodh R, Cholesterol-lowering effect of organosulphur compounds from garlic: a possible mechanism of action. *Kathmandu Univ Med J* 2: 100–102 (2004).

Mayhan W.G and Sharpe G.M Effect of cigarette smoke extract on arteriolar dilatation in vivo. *J Appl Physiol*, 81 (1996), pp. 1996-2003

Moreno PR, Falk E, Palacios IF, Newell JB, Fuster V, Fallon JT. Macrophage infiltration in acute coronary syndromes. Implications for plaque rupture. *Circulation*. 1994 Aug;90(2):775-8

Mollazadeh H, Tavana E, Fanni G, Bo S, Banach M, Pirro M, von Haehling S, Jamialahmadi T, Sahebkar A. Effects of statins on mitochondrial pathways. *J Cachexia Sarcopenia Muscle*. 2021 Apr;12(2):237-251.

Must, A., Spadano, J., Coakley, E. H., Field, A. E., Colditz, G., Dietz, W. H. (1999) The disease burden associated with overweight and obesity. *JAMA* 282: 1523–1529.

Okamoto Y, Kihara S, Funahashi T, Matsuzawa Y, Libby P. Adiponectin: a key adipocytokine in metabolic syndrome. *Clin Sci (Lond)*. 2006 Mar;110(3):267-78.

Orekhov AN and Tertov VV, *In vitro* effect of garlic powder extract on lipid content in normal and atherosclerotic human aortic cells. *Lipids* 32: 1055–1060 (1997).

Ormazabal, V., Nair, S., Elfeky, O. *et al.* Association between insulin resistance and the development of cardiovascular disease. *Cardiovasc Diabetol* 17, 122 (2018).

PAGB. Towards a Healthier Britain. 2010.

Piché ME, Poirier P, Lemieux I, Després JP. Overview of Epidemiology and Contribution of Obesity and Body Fat Distribution to Cardiovascular Disease: An Update. *Prog Cardiovasc Dis*. 2018 Jul-Aug;61(2):103-113.

Pocock S, Brieger DB, Owen R, *et al* Health-related quality of life 1–3 years post-myocardial infarction: its impact on prognosis *Open Heart* 2021;8:e001499. doi: 10.1136/openhrt-2020-001499

Polegato BF, Paiva SAR. Hypertension and Exercise: A Search for Mechanisms. *Arq Bras Cardiol*. 2018 Aug;111(2):180-181.

Public Health England. Health Matters; Combating high blood pressure. 2017

Public Health England. Health Matters: Preventing Cardiovascular disease. 2019

Qiang, Z., Lee, S.O., Ye, Z., Wu, X. and Hendrich, S. (2012). Artichoke extract lowered plasma cholesterol and increased fecal bile acids in Golden Syrian hamsters. *Phytother Res*. 26:1048–52.

Qu H, Guo M, Chai H, Wang WT, Gao ZY, Shi DZ. Effects of Coenzyme Q10 on Statin-Induced Myopathy: An Updated Meta-Analysis of Randomized Controlled Trials. *J Am Heart Assoc*. 2018 Oct 2;7(19)

Riedl I, Yoshioka M, Nishida Y, et al. Regulation of skeletal muscle transcriptome in elderly men after 6 weeks of endurance training at lactate threshold intensity. *Exp Gerontol*. 2010;45(11):896–903.

Safaa, M., Hanaa, A., Abdel, F., Nahila A and Abdelaaty S. (2013). Cynara scolymus for relieving on nonalcoholic steatohepatitis induced in rat. *Int. J. Pharm Pharmac Sci*. 5:57–66.

Sahebkar A, Pirro M, Banach M, Mikhailidis DP, Atkin SL, Cicero AFG. Lipid-lowering activity of artichoke extracts: A systematic review and meta-analysis. *Crit Rev Food Sci Nutr*. 2018;58(15):2549-2556.

Schuttern *et al.* 2018. *Magnesium and blood pressure: A physiology-based approach. Advances in Chronic Kidney Disease*. 25;3 :244-250.

Scragg R., Jackson R., Holdaway I.M., Lim T., Beaglehole R. Myocardial Infarction Is Inversely Associated With Plasma 25-Hydroxyvitamin D3 Levels: A Community-Based Study. *Int. J. Epidemiol*. 1990;19:559–563. doi: 10.1093/ije/19.3.559.

Siscovick DS, Barringer TA, Fretts AM, Wu JH, Lichtenstein AH, Costello RB, Kris-Etherton PM, Jacobson TA, Engler MB, Alger HM, Appel LJ, Mozaffarian D; American Heart Association Nutrition Committee of the Council on Lifestyle and Cardiometabolic Health; Council on Epidemiology and Prevention; Council on Cardiovascular Disease in the Young; Council on Cardiovascular and Stroke Nursing; and Council on Clinical Cardiology. Omega-3 Polyunsaturated Fatty Acid (Fish Oil) Supplementation and the Prevention of Clinical Cardiovascular Disease: A Science Advisory From the American Heart Association. *Circulation*. 2017 Apr 11;135(15)

Smith C.J and Fischer.T.H Particulate and vapor phase constituents of cigarette mainstream smoke and risk of myocardial infarction. *Atherosclerosis*, 158 (2001), pp. 257-267

Ursoniu S., Sahebkar A., Serban M.C., Banach M. Lipid profile and glucose changes after supplementation with astaxanthin: A systematic review and meta-analysis of randomized controlled trials. *Arch. Med. Sci. AMS.* 2015;11:253–266.

US Department of Health Education and Welfare. Smoking and health: Report of the Advisory Committee to the Surgeon General of the Public Health Service . Washington: Public Health Service; 1964.

Wang ZY, Liu YY, Liu GH, Lu HB, Mao CY. L-Carnitine and heart disease. *Life Sci.* 2018 Feb 1;194:88-97.

Wojcicki J, Pawlik A, Samochawiec L, Katdenska M, Mysliwiec Z: Clinical evaluation of lecithin as a lipid-lowering agent. Short communication. *Phytother Res* 9: 597–599, 1995.

Xiong XJ, Wang PQ, Li SJ, Li XK, Zhang YQ, Wang J. Garlic for hypertension: A systematic review and meta-analysis of randomized controlled trials. *Phytomedicine.* 2015 Mar 15;22(3):352-61.

Yang Q, Zhang Z, Gregg EW, Flanders WD, Merritt R, Hu FB. Added Sugar Intake and Cardiovascular Diseases Mortality Among US Adults. *JAMA Intern Med.* 2014;174(4):516–524

Yang YK, Wang LP, Chen L, Yao XP, Yang KQ, Gao LG, Zhou XL. Coenzyme Q10 treatment of cardiovascular disorders of ageing including heart failure, hypertension and endothelial dysfunction. *Clin Chim Acta.* 2015 Oct 23;450:83-9.

Yiu Y.F., Chan Y.H., Yiu K.H., Siu C.W., Li S.W., Wong L.Y., Lee S.W., Tam S., Wong E.W., Cheung B.M., et al. Vitamin D deficiency is associated with depletion of circulating endothelial progenitor cells and endothelial dysfunction in patients with type 2 diabetes. *J. Clin. Endocrinol. Metab.* 2011;96:E830–E835.

Yoshida H, Yanai H, Ito K, Tomono Y, Koikeda T, Tsukahara H, Tada N. Administration of natural astaxanthin increases serum HDL-cholesterol and adiponectin in subjects with mild hyperlipidemia. *Atherosclerosis.* 2010 Apr;209(2):520-3.

Zavodnik IB. Mitochondria, calcium homeostasis and calcium signaling *Biomed Khim* 2016 Mar;62(3):311-7.

Zeng T, Guo FF, Zhang CL, Song FY, Zhao XL, Xie KQ. A meta-analysis of randomized, double-blind, placebo-controlled trials for the effects of garlic on serum lipid profiles. *J Sci Food Agric.* 2012 Jul;92(9):1892-902.

Joint health feature:

Alice Bradshaw:

1 Rizzoli, R., et al., *Benefits and safety of dietary protein for bone health-an expert consensus paper endorsed by the European Society for Clinical and Economical Aspects of Osteoporosis, Osteoarthritis, and Musculoskeletal Diseases and by the International Osteoporosis Foundation.* *Osteoporos Int*, 2018

Keri Briggs:

Abramoff B, Caldera FE. Osteoarthritis: Pathology, Diagnosis, and Treatment Options. *Med Clin North Am.* 2020 Mar;104(2):293-311.

Akaberi M, Sahebkar A, Emami SA. Turmeric and Curcumin: From Traditional to Modern Medicine. *Adv Exp Med Biol.* 2021;1291:15-39.

Ali M, Batt M. An update on the pathophysiology of osteoarthritis. *Ann Phys Rehabil Med* 2016;333–9.

Altman RD, Marcussen KC. Effects of a ginger extract on knee pain in patients with osteoarthritis. *Arthritis Rheum.* 2001 Nov;44(11):2531-8.

Armas LA, Recker RR. Pathophysiology of osteoporosis: new mechanistic insights. *Endocrinol Metab Clin North Am.* 2012 Sep;41(3):475-86.

Arthritis Research UK (2013) *Osteoarthritis in general practice*. Arthritis Research UK. <https://www.versusarthritis.org>

Berenbaum F. Osteoarthritis as an inflammatory disease (osteoarthritis is not osteoarthrosis!). *Osteoarthritis Cartilage.* 2013 Jan;21(1):16-21. doi: 10.1016/j.joca.2012.11.012.

Berenbaum F., Griffin T. M., Liu-Bryan R., Review: Metabolic regulation of inflammation in osteoarthritis. *Arthritis Rheumatol.* **69**, 9–21 (2017).

Berry PA, Wluka AE, Davies-Tuck ML, Wang Y, Strauss BJ, Dixon JB, Proietto J, Jones G, Cicuttini FM. The relationship between body composition and structural changes at the knee. *Rheumatology (Oxford).* 2010 Dec;49(12):2362-9.

Bliddal H, Leeds AR, Christensen R. Osteoarthritis, obesity and weight loss: evidence, hypotheses and horizons - a scoping review. *Obes Rev.* 2014 Jul;15(7):578-86.

Boe C, Vangsness CT. Fish Oil and Osteoarthritis: Current Evidence. *Am J Orthop (Belle Mead NJ).* 2015 Jul;44(7):302-5.

Broken Bones, Broken Lives. International Osteoporosis Society. https://www.osteoporosis.foundation/sites/iofbonehealth/files/2019-06/1.%202018_EU6_Report_BrokenBonesBrokenLives_English.pdf

Calvez J, Poupin N, Chesneau C, et al. Protein intake, calcium balance and health consequences. *Eur J Clin Nutr.* 2012;66:281–295.

Carpenter T.O., DeLucia M.C., Zhang J.H., Bejnerowicz G., Tartamella L., Dziura J., Petersen K.F., Befroy D., Cohen D. A randomized controlled study of effects of dietary magnesium oxide supplementation on bone mineral content in healthy girls. *J. Clin. Endocrinol. Metab.* 2006;91:4866–4872.

Castiglioni S, Cazzaniga A, Albisetti W, Maier JAM. Magnesium and osteoporosis: Current state of knowledge and future research directions. *Nutrients.* 2013;5:3022–3033.

Chen L, Liu R, Zhao Y, Shi Z. High Consumption of Soft Drinks Is Associated with an Increased Risk of Fracture: A 7-Year Follow-Up Study. *Nutrients.* 2020 Feb 19;12(2):530.

Christensen R, Bartels EM, Altman RD, Astrup A, Bliddal H. Does the hip powder of *Rosa canina* (rosehip) reduce pain in osteoarthritis patients?--a meta-analysis of randomized controlled trials. *Osteoarthritis Cartilage.* 2008 Sep;16(9):965-72.

Clemmons DR, Seek MM, Underwood LE (1985) Supplemental essential amino acids augment the somatomedin-C/insulin-like growth factor I response to refeeding after fasting. *Metabolism* 34:391–395

Clynes MA, Gregson CL, Bruyère O, Cooper C, Dennison EM. Osteosarcopenia: where osteoporosis and sarcopenia collide. *Rheumatology (Oxford).* 2021 Feb 1;60(2):529-537.

Coxam V. Phyto-oestrogens and bone health. *Proc Nutr Soc.* 2008 May;67(2):184-95.

Dahmer S, Schiller RM. Glucosamine. *Am Fam Physician.* 2008 Aug 15;78(4):471-6.

Debbi EM, Agar G, Fichman G, Ziv YB, Kardosh R, Halperin N, Elbaz A, Beer Y, Debi R. Efficacy of methylsulfonylmethane supplementation on osteoarthritis of the knee: a randomized controlled study. *BMC Complement Altern Med.* 2011 Jun 27;11:50

Dorn LD, Beal SJ, Kalkwarf HJ, Pabst S, Noll JG, Susman EJ. Longitudinal impact of substance use and depressive symptoms on bone accrual among girls aged 11–19 years. *J Adolesc Health* 2013; 52(4): 393–399

Epsley S, Tadros S, Farid A, Kargilis D, Mehta S, Rajapakse CS. The Effect of Inflammation on Bone. *Front Physiol.* 2021 Jan 5;11:511799.

Erem S, Atfi A, Razzaque MS (2019) Anabolic effects of vitamin D and magnesium in aging bone. *J Steroid Biochem Mol Biol* 193

Ferland G., Sadowski J.A., O'Brien M.E. Dietary induced subclinical vitamin K deficiency in normal human subjects. *J. Clin. Investig.* 1993;91:1761–1768.

Felson DT, Anderson JJ, Naimark A, Walker AM, Meenan RF. Obesity and knee osteoarthritis. The Framingham Study. *Ann Intern Med.* 1988 Jul 1;109(1):18-24.

Felson DT, Zhang Y, Anthony JM, Naimark A, Anderson JJ. Weight loss reduces the risk for symptomatic knee osteoarthritis in women. The Framingham Study. *Ann Intern Med.* 1992;116:535–539.

Garnero P, Sornay-Rendu E, Duboeuf F, Delmas PD. Markers of bone turnover predict postmenopausal forearm bone loss over 4 years: the OFELY study *J. Bone Miner. Res.*, 14 (1999), pp. 1614-1621,

George KS , Muñoz J , Akhavan NS , Foley EM , Siebert SC , Tenenbaum G , Khalil DA , Chai SC , Arjmandi BH . Is soy protein effective in reducing cholesterol and improving bone health? *Food Funct.* 2020 Jan 29;11(1):544-551.

Gillie.O A new government policy is needed for sunlight and vitamin D. *British Journal of Dermatology.* 2006;154

Gillie O. Sunlight robbery: a critique of public health policy on vitamin D in the UK. *Mol Nutr Food Res.* 2010 Aug;54(8):1148-63.

Glyn-Jones, S., Palmer, A.J.R., Agricola, R. *et al.* (2015) Osteoarthritis. *Lancet* **386**(9991), 376-387.

Goldring MB, Otero M. Inflammation in osteoarthritis. *Curr Opin Rheumatol* 2011 Sep;23(5):471e8

Henrotin Y, Mobasheri A, Marty M. Is there any scientific evidence for the use of glucosamine in the management of human osteoarthritis? *Arthritis Res Ther.* 2012 Jan 30;14(1):201.

Goyal A, Agrawal N. Quercetin: A Potential Candidate for the Treatment of Arthritis. *Curr Mol Med.* 2022;22(4):325-335.

Grant WB, Cross HS, Garland CF, Gorham ED, Moan J, Peterlik M, Porojnicu AC, Reichrath J, Zittermann A. Estimated benefit of increased vitamin D status in reducing the economic burden of disease in western Europe. *Prog Biophys Mol Biol.* 2009 Feb-Apr;99(2-3):104-13.

Hardy R., Cooper M. S. (2009). Bone loss in inflammatory disorders. *J. Endocrinol.* 201 309–320.

Heaney RP, Abrams S, Dawson-Hughes B, Looker A, Marcus R, Matkovic V, Weaver C. Peak bone mass. *Osteoporos Int.* 2000;11(12):985-1009.

Hill CL, March LM, Aitken D, Lester SE, Battersby R, Hynes K, Fedorova T, Proudman SM, James M, Cleland LG, Jones G. Fish oil in knee osteoarthritis: a randomised clinical trial of low dose versus high dose. *Ann Rheum Dis.* 2016 Jan;75(1):23-9.

Inaba N, Sato T, Yamashita T. Low-Dose Daily Intake of Vitamin K(2) (Menaquinone-7) Improves Osteocalcin γ -Carboxylation: A Double-Blind, Randomized Controlled Trials. *J Nutr Sci Vitaminol (Tokyo).* 2015;61(6):471-80.

Izquierdo M, Merchant RA, Morley JE, Anker SD, Aprahamian I, Arai H, Aubertin-Leheudre M, Bernabei R, Cadore EL, Cesari M, Chen LK, de Souto Barreto P, Duque G, Ferrucci L, Fielding RA, García-Hermoso A, Gutiérrez-Robledo LM, Harridge SDR, Kirk B, Kritchevsky S, Landi F, Lazarus N, Martin FC, Marzetti E, Pahor M, Ramírez-Vélez R, Rodríguez-Mañas L, Rolland Y, Ruiz JG, Theou O, Villareal DT, Waters DL, Won Won C, Woo J, Vellas B, Fiatarone Singh M. International Exercise Recommendations in Older Adults (ICFSR): Expert Consensus Guidelines. *J Nutr Health Aging*. 2021;25(7):824-853. doi: 10.1007/s12603-021-1665-8.

Jesudason D, Clifton P. The interaction between dietary protein and bone health. *J Bone Miner Metab*. 2011 Jan;29(1):1-14.

Kapoor M, Martel-Pelletier J, Lajeunesse D, Pelletier J-P, Fahmi H. Role of proinflammatory cytokines in the pathophysiology of osteoarthritis. *Nat Rev Rheumatol* 2011 Jan;7(1):33e42.

Khaw K.T., Sneyd M.J., Compston J. Bone density, parathyroid hormone and 25-hydroxyvitamin D concentrations in middle-aged women. *Br. Med. J.* 1992;305:273–277.

Khosla S, Oursler MJ, Monroe DG. Estrogen and the skeleton. *Trends Endocrinol Metab*. 2012 Nov;23(11):576-81.

Kim LS, Axelrod LJ, Howard P, Buratovich N, Waters RF. Efficacy of methylsulfonylmethane (MSM) in osteoarthritis pain of the knee: a pilot clinical trial. *Osteoarthritis Cartilage*. 2006 Mar;14(3):286-94.

Koutsofta I, Mamais I, Chrysostomou S. The effect of protein diets in postmenopausal women with osteoporosis: Systematic review of randomized controlled trials. *J Women Aging*. 2019 Mar-Apr;31(2):117-139.

Kulkarni K, Karssiens T, Kumar V, Pandit H. Obesity and osteoarthritis. *Maturitas*. 2016 Jul;89:22-8.

Kuszewski JC, Wong RHX, Howe PRC. Fish oil supplementation reduces osteoarthritis-specific pain in older adults with overweight/obesity. *Rheumatol Adv Pract*. 2020 Jul 23;4(2)

Lesjak.M, Beara. I, Simin. N, Pintać. D, Majkić. T, Bekvalac. K. Antioxidant and anti-inflammatory activities of quercetin and its derivatives. *J Funct Foods*. 2018; 40:68–75

Li T. Research progress on pathogenesis of smoking-induced osteoporosis. *Chin J Osteoporos (Zhongguo Gu Zhi Shu Song Za Zhi)* 2010; 16(5): 381–386 (in Chinese)

Loeser RF, Goldring SR, Scanzello CR, Goldring MB. Osteoarthritis: a disease of the joint as an organ. *Arthritis Rheum* 2012. Jun; 64(6): 1697e707.

Lopes Vaz A. Double-blind clinical evaluation of the relative efficacy of ibuprofen and glucosamine sulphate in the management of osteoarthrosis of the knee in out-patients. *Curr Med Res Opin*. 1982;8(3):145-9.

Lorentzon M, Mellström D, Haug E, Ohlsson C. Smoking is associated with lower bone mineral density and reduced cortical thickness in young men. *J Clin Endocrinol Metab* 2007; 92(2): 497–503 120.

Lubis AMT, Siagian C, Wonggokusuma E, Marsetyo AF, Setyohadi B. Comparison of Glucosamine-Chondroitin Sulfate with and without Methylsulfonylmethane in Grade I-II Knee Osteoarthritis: A Double Blind Randomized Controlled Trial. *Acta Med Indones*. 2017 Apr;49(2):105-111.

Lucas R, Fraga S, Ramos E, Barros H. Early initiation of smoking and alcohol drinking as a predictor of lower forearm bone mineral density in late adolescence: a cohort study in girls. *PLoS One* 2012; 7(10): e46940

Ma DF, Qin LQ, Wang PY, Kato R. Soy isoflavone intake inhibits bone resorption and stimulates bone formation in menopausal women: meta-analysis of randomized controlled trials. *Eur J Clin Nutr*. 2008 Feb;62(2):155-61.

Mamani-Matsuda M, Kauss T, Al-Kharrat A, Rambert J, Fawaz F, Thiolat D, Moynet D, Coves S, Malvy D, Mossalayi MD. Therapeutic and preventive properties of quercetin in experimental arthritis correlate with decreased macrophage inflammatory mediators. *Biochem Pharmacol*. 2006 Nov 15;72(10):1304-10.

Mangano KM, Sahni S, Kerstetter JE. Dietary protein is beneficial to bone health under conditions of adequate calcium intake: an update on clinical research. *Curr Opin Clin Nutr Metab Care*. 2014 Jan;17(1):69-74.

Marshall K. Therapeutic applications of whey protein. *Altern Med Rev*. 2004 Jun;9(2):136-56.

McGraw RL, Riggs JE. Osteoporosis, sedentary lifestyle, and increasing hip fractures: pathogenic relationship or differential survival bias. *Calcif Tissue Int*. 1994 Aug;55(2):87-9.

Mederle OA, Balas M, Ioanoviciu SD, et al. Correlations between bone turnover markers, serum magnesium and bone mass density in postmenopausal osteoporosis. *Clin Interv Aging*. 2018;13:1383–1389.

Muehleman C, Margulis A, Bae WC, Masuda K. Relationship between knee and ankle degeneration in a population of organ donors. *BMC Med*. 2010;8:48.

Müller-Fassbender H, Bach GL, Haase W, Rovati LC, Setnikar I. Glucosamine sulfate compared to ibuprofen in osteoarthritis of the knee. *Osteoarthritis Cartilage*. 1994 Mar;2(1):61-9

Muschitz C, Patsch J, Buchinger E, et al. Prevalence of vertebral fracture in elderly men and women with osteopenia. *Wien Klin Wochenschr* 2009; 121(15–16):528–36.

Musumeci G, Aiello FC, Szychlinska MA, Di Rosa M, Castrogiovanni P, Mobasher A. Osteoarthritis in the XXIst century: risk factors and behaviours that influence disease onset and progression. *Int J Mol Sci*. 2015 Mar 16;16(3):6093-112
<https://cks.nice.org.uk/topics/osteoporosis-prevention-of-fragility-fractures/background-information/prevalence/>

NICE (2014) *Osteoarthritis. Care and management in adults (NICE guideline)*. Clinical guideline 177. National Institute for Health and Care Excellence. <http://www.nice.org.uk>
<https://cks.nice.org.uk/topics/osteoarthritis/background-information/prevalence/>

Peanpadungrat P. Efficacy and Safety of Fish Oil in Treatment of Knee Osteoarthritis. *J Med Assoc Thai*. 2015 Apr;98 Suppl 3:S110-4.

Pfeilschifter J., Chenu C., Bird A., Mundy G. R., Roodman D. G. (1989). Interleukin-1 and tumor necrosis factor stimulate the formation of human osteoclastlike cells in vitro. *J. Bone Miner. Res.* 4 113–118.

Pitaraki EE. The role of Mediterranean diet and its components on the progress of osteoarthritis. *J Frailty Sarcopenia Falls*. 2017 Sep 1;2(3):45-52.

Reginster JY, Deroisy R, Rovati LC, Lee RL, Lejeune E, Bruyere O, Giacobelli G, Henrotin Y, Dacre JE, Gossett C. Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomised, placebo-controlled clinical trial. *Lancet*. 2001 Jan 27;357(9252):251-6.

Reiss J, Iglseider B, Alzner R, Mayr-Pirker B, Pirich C, Kässmann H, Kreutzer M, Dovjak P, Reiter R. Sarcopenia and osteoporosis are interrelated in geriatric inpatients. *Z Gerontol Geriatr*. 2019 Nov;52(7):688-693.

Rhizoma galangae. Köln: Bundesanzeiger [Federal German Legal Gazette]; 1990 Mar 13. Commission E monograph No.: 173.

Rondanelli M, Faliva MA, Tartara A, Gasparri C, Perna S, Infantino V, Riva A, Petrangolini G, Peroni G. An update on magnesium and bone health. *Biometals*. 2021 Aug;34(4):715-736. doi: 10.1007/s10534-021-00305-0.

Sato T, Schurgers LJ, Uenishi K. Comparison of menaquinone-4 and menaquinone-7 bioavailability in healthy women. *Nutr J*. 2012 Nov 12;11:93.

Samadi F, Kahrizi MS, Heydari F, Arefnezhad R, Roghani-Shahraki H, Mokhtari Ardekani A, Rezaei-Tazangi F. Quercetin and Osteoarthritis: A Mechanistic Review on the Present Documents. *Pharmacology*. 2022;107(9-10):464-471.

Simopoulos AP. Omega-3 fatty acids in inflammation and autoimmune diseases. *J Am Coll Nutr*. 2002 Dec;21(6):495-505.

Siris ES, Brennan SK, Barrett-Connor E, et al. The effect of age and bone mineral density on the absolute, excess, and relative risk of fracture in postmenopausal women aged 50-99: results from the National Osteoporosis Risk Assessment (NORA). *Osteoporos Int* 2006;17(4):565-74.

Suttie J.W., Mumma-Schendel L.L., Shah D.V., Lyle B.J., Greger J.L. Vitamin K deficiency from dietary vitamin K restriction in humans. *Am. J. Clin. Nutr*. 1988;47:475-480.

Swain S, Sarmanova A, Mallen C, Kuo CF, Coupland C, Doherty M, Zhang W. Trends in incidence and prevalence of osteoarthritis in the United Kingdom: findings from the Clinical Practice Research Datalink (CPRD). *Osteoarthritis Cartilage*. 2020 Jun;28(6):792-801.

Takeda E, Yamamoto H, Yamanaka-Okumura H, Taketani Y. Increasing dietary phosphorus intake from food additives: potential for negative impact on bone health. *Adv Nutr*. 2014 Jan 1;5(1):92-7.

Thie NM, Prasad NG, Major PW. Evaluation of glucosamine sulfate compared to ibuprofen for the treatment of temporomandibular joint osteoarthritis: a randomized double blind controlled 3 month clinical trial. *J Rheumatol*. 2001 Jun;28(6):1347-55.

Toda Y, Toda T, Takemura S, Wada T, Morimoto T, Ogawa R. Change in body fat, but not body weight or metabolic correlates of obesity, is related to symptomatic relief of obese patients with knee osteoarthritis after a weight control program. *J Rheumatol*. 1998;25:2181-2186.

Tomkinson A, Reeve J, Shaw RW, Noble BS. The death of osteocytes via apoptosis accompanies estrogen withdrawal in human bone. *J Clin Endocrinol Metab*. 1997;82:3128-3135.

Tranquilli A.L., Lucino E., Garzetti G.G., Romanini C. Calcium, phosphorus and magnesium intakes correlate with bone mineral content in postmenopausal women. *Gynecol. Endocrinol*. 1994;8:55-58.

Trivedi D.P., Doll R., Khaw K.T. Effect of four monthly oral vitamin D3 [cholecalciferol] supplementation on fractures and mortality in men and women living in the community: randomised double blind controlled trial. *BMJ*. 2003;326:469.

Troy KL, Mancuso ME, Butler TA, Johnson JE. Exercise Early and Often: Effects of Physical Activity and Exercise on Women's Bone Health. *Int J Environ Res Public Health*. 2018 Apr 28;15(5):878.

Tsugawa N, Shiraki M. Vitamin K Nutrition and Bone Health. *Nutrients*. 2020 Jun 27;12(7):1909.

Tucker KL, Morita K, Qiao N, Hannan MT, Cupples LA, Kiel DP. Colas, but not other carbonated beverages, are associated with low bone mineral density in older women: The Framingham Osteoporosis Study. *Am J Clin Nutr*. 2006 Oct;84(4):936-42.

Väänänen HK, Härkönen PL. Estrogen and bone metabolism. *Maturitas*. 1996 May;23 Suppl:S65-9. doi: 10.1016/0378-5122(96)01015-8.

Vatanparast H, Bailey DA, Baxter-Jones AD, Whiting SJ (2007) The effects of dietary protein on bone mineral mass in young adults may be modulated by adolescent calcium intake. *J Nutr* 137:2674–2679

Veronese N, Stubbs B, Noale M, et al. Adherence to a Mediterranean diet is associated with lower prevalence of osteoarthritis: Data from the osteoarthritis initiative. *Clinical Nutrition*. 2016:1–6

Wang M.C., Moore E.C., Crawford P.B., Hudes M., Sabry Z.I., Marcus R., Bachrach L.K. Influence of pre-adolescent diet on quantitative ultrasound measurements of the calcaneus in young adult women. *Osteoporos. Int*. 1999;9:532–535.

Wang Z, Singh A, Jones G, Winzenberg T, Ding C, Chopra A, Das S, Danda D, Laslett L, Antony B. Efficacy and Safety of Turmeric Extracts for the Treatment of Knee Osteoarthritis: a Systematic Review and Meta-analysis of Randomised Controlled Trials. *Curr Rheumatol Rep*. 2021 Jan 28;23(2):11.

Warensjö E, Byberg L, Melhus H, Gedeberg R, Mallmin H, Wolk A, Michaëlsson K. Dietary calcium intake and risk of fracture and osteoporosis: prospective longitudinal cohort study. *BMJ*. 2011 May 24;342:d1473.

Winther K., Rein E., Kharazmi A. The anti-inflammatory properties of rose-hip. *Inflammopharmacology* 1999; 7: 63–8

Winther K, Apel K, Thamsborg G. A powder made from seeds and shells of a rose-hip subspecies (*Rosa canina*) reduces symptoms of knee and hip osteoarthritis: a randomized, double-blind, placebo-controlled clinical trial. *Scand J Rheumatol*. 2005 Jul-Aug;34(4):302-8.

Zheng X, Lee SK, Chun OK. Soy Isoflavones and Osteoporotic Bone Loss: A Review with an Emphasis on Modulation of Bone Remodeling. *J Med Food*. 2016 Jan;19(1):1-14.

Zhu X, Zheng H. Factors influencing peak bone mass gain. *Front Med*. 2021 Feb;15(1):53-69. doi: 10.1007/s11684-020-0748-y

Liver health feature:

Keri Briggs:

Abdelmalek MF. Nonalcoholic fatty liver disease: another leap forward. *Nat Rev Gastroenterol Hepatol*. 2021 Feb;18(2):85-86.

Aigner E, Theurl I, Haufe H, et al. Copper availability contributes to iron perturbations in human nonalcoholic fatty liver disease. *Gastroenterology*. 2008;135(2):680-688.

Ajmera V, Belt P, Wilson LA, et al. Among patients with nonalcoholic fatty liver disease, modest alcohol use is associated with less improvement in histologic steatosis and steatohepatitis. *Clin Gastroenterol Hepatol*. 2018;16(9):1511-1520.e1515.

Al-Qattan K.K., Khan I., Alnaqeeb M.A., Ali M. Thromboxane-B2, prostaglandin-E2 and hypertension in the rat 2-kidney 1-clip model: a possible mechanism of the garlic induced hypotension. *Prostag. Leukotr. Ess.*, 64 (1) (2001), pp. 5-

Al-Qattan K.K., Thomson M., Al-Mutawa'a S., Al-Hajeri D., Drobiova H., Ali M. Nitric oxide mediates the blood-pressure lowering effect of garlic in the rat two-kidney, one-clip model of hypertension. *J. Nutr.*, 136 (3s) (2006), pp. 774s-

Anania C, Perla FM, Olivero F, Pacifico L, Chiesa C. Mediterranean diet and nonalcoholic fatty liver disease. *World J Gastroenterol*. 2018 May 21;24(19):2083-2094.

Asdaq S.M., Inamdarb M.N. Potential of garlic and its active constituent, S-allyl cysteine, as antihypertensive and cardioprotective in presence of captopril *Phytomedicine.*, 17 (13) (2010), pp. 1016-1026

Baratta F, Pastori D, Polimeni L, Bucci T, Ceci F, Calabrese C, Ernesti I, Pannitteri G, Violi F, Angelico F, et al. Adherence to Mediterranean Diet and Non-Alcoholic Fatty Liver Disease: Effect on Insulin Resistance. *Am J Gastroenterol.* 2017;112:1832–1839.

Buchman AL. Complications of long-term home total parenteral nutrition: their identification, prevention and treatment. *Dig Dis Sci.* 2001;46:1–18.

Burton R, Henn C, Lavoie D, et al. Public Health England (2016). [The Public Health Burden of Alcohol and the Effectiveness and Cost-Effectiveness of Alcohol Control Policies: An Evidence Review.](#)

Chang Y, Cho YK, Kim Y, et al. Nonheavy drinking and worsening of noninvasive fibrosis markers in nonalcoholic fatty liver disease: a cohort study. *Hepatology (Baltimore, MD).* 2019;69(1):64-75.

Corbin KD, Zeisel SH. Choline metabolism provides novel insights into nonalcoholic fatty liver disease and its progression. *Curr Opin Gastroenterol.* 2012 Mar;28(2):159-65.

da Costa KA, Kozyreva OG, Song J, et al. Common genetic polymorphisms affect the human requirement for the nutrient choline. *Faseb J.* 2006;20:1336–1344.

Cuthbertson Daniel J, Shojaee-Moradie F, Sprung Victoria S, et al. Dissociation between exercise-induced reduction in liver fat and changes in hepatic and peripheral glucose homeostasis in obese patients with non-alcoholic fatty liver disease. *Clin Sci.* 2015;130(2):93-104.

Federico A, Dallio M, Loguercio C. Silymarin/Silybin and Chronic Liver Disease: A Marriage of Many Years. *Molecules.* 2017 Jan 24;22(2):191.

Fernando DH, Forbes JM, Angus PW, Herath CB. Development and Progression of Non-Alcoholic Fatty Liver Disease: The Role of Advanced Glycation End Products. *Int J Mol Sci.* 2019 Oct 11;20(20):5037.

Franco I, Bianco A, Mirizzi A, et al. Physical activity and low glycemic index mediterranean diet: main and modification effects on NAFLD score. Results from a randomized clinical trial. *Nutrients.* 2020;13(1).

Gebhardt, R. (2002). Inhibition of cholesterol biosynthesis in HepG2 cells by artichoke extracts is reinforced by glucosidase pretreatment. *Phytother Res.* 16:368–72.

Kamal-Eldin A, Moazzami A. Plant sterols and stanols as cholesterol-lowering ingredients in functional foods. *Recent Pat Food Nutr Agric.* 2009 Jan;1(1):1-14.

Kesse-Guyot E, Ahluwalia N, Lassale C, Hercberg S, Fezeu L, Lairon D. Adherence to Mediterranean diet reduces the risk of metabolic syndrome: a 6-year prospective study. *Nutr Metab Cardiovasc Dis.* 2013;23:677–683

Kohlmeier M, da Costa KA, Fischer LM, et al. Genetic variation of folate-mediated one-carbon transfer pathway predicts susceptibility to choline deficiency in humans. *Proc Natl Acad Sci U S A.* 2005;102:16025–16030

de Leiris J, de Lorgeril M, Boucher F. Fish oil and heart health. *J Cardiovasc Pharmacol.* 2009 Nov;54(5):378-384.

Liu F, Wang X, Wu G, et al. Coffee consumption decreases risks for hepatic fibrosis and cirrhosis: a meta-analysis. *PLoS ONE.* 2015;10(11):e0142457.

Li S, Duan F, Li S, Lu B. Administration of silymarin in NAFLD/NASH: A systematic review and meta-analysis. *Ann Hepatol.* 2024 Mar-Apr;29(2):101174. doi: 10.1016/j.aohep.2023.101174. Epub 2023 Oct 29. PMID: 38579127.

Lu L, Chen C, Li Y, Guo W, Zhang S, Brockman J, Shikany JM, Kahe K. Magnesium intake is inversely associated with risk of non-alcoholic fatty liver disease among American adults. *Eur J Nutr.* 2022 Apr;61(3):1245-1254. doi: 10.1007/s00394-021-02732-8. Epub 2021 Nov 6. PMID: 34741649.

Malhotra P, Gill RK, Saksena S, Alrefai WA. Disturbances in Cholesterol Homeostasis and Non-alcoholic Fatty Liver Diseases. *Front Med (Lausanne).* 2020 Sep 2;7:467.

Mathew BC, Prasad NV and Prabodh R, Cholesterol-lowering effect of organosulphur compounds from garlic: a possible mechanism of action. *Kathmandu Univ Med J* 2: 100–102 (2004).c

McDonald D, Hyde E, Debelius JW, Morton JT, Gonzalez A, Ackermann G, Aksenov AA, Behsaz B, Brennan C, Chen Y, DeRight Goldasich L, Dorrestein PC, Dunn RR, Fahimipour AK, Gaffney J, Gilbert JA, Gogul G, Green JL, Hugenholtz P, Humphrey G, Huttenhower C, Jackson MA, Janssen S, Jeste DV, Jiang L, Kelley ST, Knights D, Kosciulek T, Ladau J, Leach J, Marotz C, Meleshko D, Melnik AV, Metcalf JL, Mohimani H, Montassier E, Navas-Molina J, Nguyen TT, Peddada S, Pevzner P, Pollard KS, Rahnavard G, Robbins-Pianka A, Sangwan N, Shorenstein J, Smarr L, Song SJ, Spector T, Swafford AD, Thackray VG, Thompson LR, Tripathi A, Vázquez-Baeza Y, Vrbancac A, Wischmeyer P, Wolfe E, Zhu Q; American Gut Consortium; Knight R. American Gut: an Open Platform for Citizen Science Microbiome Research. *mSystems.* 2018 May 15;3(3)

Mehedint MG, Zeisel SH. Choline's role in maintaining liver function: new evidence for epigenetic mechanisms. *Curr Opin Clin Nutr Metab Care.* 2013 May;16(3):339-45

Meslier V, Laiola M, Roager HM, De Filippis F, Roume H, Quinquis B, Giacco R, Mennella I, Ferracane R, Pons N, Pasolli E, Rivellese A, Dragsted LO, Vitaglione P, Ehrlich SD, Ercolini D. Mediterranean diet intervention in overweight and obese subjects lowers plasma cholesterol and causes changes in the gut microbiome and metabolome independently of energy intake. *Gut.* 2020 Jul;69(7):1258-1268.

Orekhov AN and Tertov VV, In vitro effect of garlic powder extract on lipid content in normal and atherosclerotic human aortic cells. *Lipids* 32: 1055–1060 (1997).

Panahi Y, Kianpour P, Mohtashami R, Atkin SL, Butler AE, Jafari R, Badeli R, Sahebkar A. Efficacy of artichoke leaf extract in non-alcoholic fatty liver disease: A pilot double-blind randomized controlled trial. *Phytother Res.* 2018 Jul;32(7):1382-1387. doi: 10.1002/ptr.6073. Epub 2018 Mar 9. PMID: 29520889.

Pickett-Blakely O, Young K, Carr RM. Micronutrients in nonalcoholic fatty liver disease pathogenesis. *Cell Mol Gastroenterol Hepatol.* 2018;6(4):451-462.

Pierantonelli I, Svegliati-Baroni G. Nonalcoholic Fatty Liver Disease: Basic Pathogenetic Mechanisms in the Progression From NAFLD to NASH. *Transplantation.* 2019 Jan;103(1):e1-e13.

Qiang, Z., Lee, S.O., Ye, Z., Wu, X. and Hendrich, S. (2012). Artichoke extract lowered plasma cholesterol and increased fecal bile acids in Golden Syrian hamsters. *Phytother Res.* 26:1048–52.

Safaa, M., Hanaa, A., Abdel, F., Nahila A and Abdelaaty S. (2013). *Cynara scolymus* for relieving on nonalcoholic steatohepatitis induced in rat. *Int. J. Pharm Pharmac Sci.* 5:57–66.

Sahebkar A, Pirro M, Banach M, Mikhailidis DP, Atkin SL, Cicero AFG. Lipid-lowering activity of artichoke extracts: A systematic review and meta-analysis. *Crit Rev Food Sci Nutr*. 2018;58(15):2549-2556.

Schuttern et al. 2018. Magnesium and blood pressure: A physiology-based approach. *Advances in Chronic Kidney Disease*. 25;3 :244-250.

Semmler G, Datz C, Reiberger T, Trauner M. Diet and exercise in NAFLD/NASH: Beyond the obvious. *Liver Int*. 2021 Oct;41(10):2249-2268.

Shojaee-Moradie F, Cuthbertson DJ, Barrett M, et al. Exercise training reduces liver fat and increases rates of VLDL clearance but not VLDL production in NAFLD. *J Clin Endocrinol Metab*. 2016;101(11):4219-4228.

Veronese N, Dominguez LJ, Pizzol D, Demurtas J, Smith L, Barbagallo M. Oral Magnesium Supplementation for Treating Glucose Metabolism Parameters in People with or at Risk of Diabetes: A Systematic Review and Meta-Analysis of Double-Blind Randomized Controlled Trials. *Nutrients*. 2021 Nov 15;13(11):4074. doi: 10.3390/nu13114074. PMID: 34836329; PMCID: PMC8619199.

Wang X, Wu W, Zheng W, et al. Zinc supplementation improves glycemic control for diabetes prevention and management: a systematic review and meta-analysis of randomized controlled trials. *Am J Clin Nutr*. 2019;110(1):76-90.

Wijarnpreecha K, Thongprayoon C, Ungprasert P. Coffee consumption and risk of nonalcoholic fatty liver disease: a systematic review and meta-analysis. *Eur J Gastro Hepatol*. 2017;29(2):e8-e12

Wojcicki J, Pawlik A, Samochawiec L, Katdenska M, Mysliwiec Z: Clinical evaluation of lecithin as a lipid-lowering agent. Short communication. *Phytother Res* 9: 597–599, 1995.

Xiong XJ, Wang PQ, Li SJ, Li XK, Zhang YQ, Wang J. Garlic for hypertension: A systematic review and meta-analysis of randomized controlled trials. *Phytomedicine*. 2015 Mar 15;22(3):352-61.

Yoshida H, Yanai H, Ito K, Tomono Y, Koikeda T, Tsukahara H, Tada N. Administration of natural astaxanthin increases serum HDL-cholesterol and adiponectin in subjects with mild hyperlipidemia. *Atherosclerosis*. 2010 Apr;209(2):520-3.

Zeisel SH. Choline: critical role during fetal development and dietary requirements in adults. *Annu Rev Nutr*. 2006;26:229–250.

Zeisel SH, da Costa KA. Choline: an essential nutrient for public health. *Nutr Rev*. 2009 Nov;67(11):615-23.

Zeng T, Guo FF, Zhang CL, Song FY, Zhao XL, Xie KQ. A meta-analysis of randomized, double-blind, placebo-controlled trials for the effects of garlic on serum lipid profiles. *J Sci Food Agric*. 2012 J

Zhao YC, Zhao GJ, Chen Z, She ZG, Cai J, Li H. Nonalcoholic Fatty Liver Disease: An Emerging Driver of Hypertension. *Hypertension*. 2020 Feb;75(2):275-284.

Zolfaghari H, Askari G, Siassi F, Feizi A, Sotoudeh G. Intake of nutrients, fiber, and sugar in patients with nonalcoholic fatty liver disease in comparison to healthy individuals. *Int J Prev Med*. 2016;7:98

Sophie Barrett:

Zhang W, et al. 2018

Dai XW et al., 2015; Chen GT et al.,2012; Yeh JY et al., 2011; Chen Z et al.,2017
Živković L et al., 2017; Lv A et al., 2018; Ker YB et al.,2005; Chang JB et al., 2011;
Zhang C et al.,2012; Al-Dbass AM et al., 2012
Zhang G et al.,2010; Zhao YY et al.,2009

He PF et al., 2016
Reis FS et al., 2012
Chen P et al., 2015
Peng Y, et al., 2014; Ko WS et al., 2010; Li SP et al., 2003 ; Wang Y et al., 2009 ; Gu YX et al., 2007; Sharma SK et al., 2016

Catherine Gorman:

<https://www.thelancet.com/commissions/crisis-of-liver-disease-in-the-UK>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6163782/#B10-nutrients-10-01153>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6163782/#B9-nutrients-10-01153>
<https://pubmed.ncbi.nlm.nih.gov/24529325/>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6163782/#B19-nutrients-10-01153>
<https://www.nature.com/articles/s41598-019-57036>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5053538/>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5037659/>
<https://pubmed.ncbi.nlm.nih.gov/26156412/>
<https://pubmed.ncbi.nlm.nih.gov/29623830/>
<https://www.frontiersin.org/articles/10.3389/fmed.2021.689042/full>
<https://pubmed.ncbi.nlm.nih.gov/27124606/>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6163782/>
<https://britishlivertrust.org.uk/information-and-support/statistics/>
<https://pubmed.ncbi.nlm.nih.gov/36990226/>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC10496397/>
<https://bmcpublichealth.biomedcentral.com/articles/10.1186/s12889-021-10991-7>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7354004/>
<https://pubmed.ncbi.nlm.nih.gov/33147705/>

Max Lambert:

Cholongitas E, Pavlopoulou I, Papatheodoridi M, Markakis GE, Bouras E, Haidich AB, Papatheodoridis G. Epidemiology of nonalcoholic fatty liver disease in Europe: a systematic review and meta-analysis. *Ann Gastroenterol.* 2021;34(3):404-414. doi: 10.20524/aog.2021.0604.

Niu, X., Zhu, L., Xu, Y. et al. Global prevalence, incidence, and outcomes of alcohol related liver diseases: a systematic review and meta-analysis. *BMC Public Health* 23, 859 (2023). <https://doi.org/10.1186/s12889-023-15749-x>

European Centre for Disease Prevention and Control. Systematic review on hepatitis B and C prevalence in the EU/EEA. Stockholm: ECDC; 2016.

Simpson RF, Hermon C, Liu B, Green J, Reeves GK, Beral V, Floud S; Million Women Study Collaborators. Alcohol drinking patterns and liver cirrhosis risk: analysis of the prospective UK Million Women Study. *Lancet Public Health.* 2019 Jan;4(1):e41-e48. doi: 10.1016/S2468-2667(18)30230-5.

Bischoff, S. C., Bernal, W., Dasarathy, S., Merli, M., Plank, L. D., Schütz, T., & Plauth, M. (2020). ESPEN practical guideline: Clinical nutrition in liver disease. *Clinical nutrition (Edinburgh, Scotland)*, 39(12), 3533-3562.

Ignat, M.V.; Coldea, T.E.; Salanță, L.C.; Mudura, E. Plants of the Spontaneous Flora with Beneficial Action in the Management of Diabetes, Hepatic Disorders, and Cardiovascular Disease. *Plants* 2021, 10, 216.

<https://doi.org/10.3390/plants10020216>

Ingredient spotlight:

Baszczuk A, Kopczynski Z. Hyperhomocysteinemia in patients with cardiovascular disease [Abstract] *Postepy Hig Med Dosw.* 2014;68:579.

Bidulescu A, Chambless LE, Siega-Riz AM, et al. Usual choline and betaine dietary intake and incident coronary heart disease: the Atherosclerosis Risk in Communities (ARIC) study. *BMC Cardiovasc Disord.* 2007;7:20.

Bidulescu A, Chambless LE, Siega-Riz AM, et al. Repeatability and measurement error in the assessment of choline and betaine dietary intake: the Atherosclerosis Risk in Communities (ARIC) study. *Nutr J.* 2009;8:14.

Caudill MA, Strupp BJ, Muscalu L, Nevins JEH, Canfield RL. Maternal choline supplementation during the third trimester of pregnancy improves infant information processing speed: a randomized, double-blind, controlled feeding study. *FASEB J.* 2018 Apr;32(4):2172-2180.

Chiuve S, Giovannucci E, Hankinson S, et al. The association between betaine and choline intakes and the plasma concentrations of homocysteine in women. *Am J Clin Nutr.* 2007;86:1073–1081.

Cho E, Zeisel SH, Jacques P, et al. Dietary choline and betaine assessed by food-frequency questionnaire in relation to plasma total homocysteine concentration in the Framingham Offspring Study. *Am J Clin Nutr.* 2006;83:905–911.

Cho E, Willett WC, Colditz GA, et al. Dietary choline and betaine and the risk of distal colorectal adenoma in women. *J Natl Cancer Inst.* 2007;99:1224–1231.

Corbin KD, Zeisel SH. Choline metabolism provides novel insights into nonalcoholic fatty liver disease and its progression. *Curr Opin Gastroenterol.* 2012 Mar;28(2):159-65.

da Costa KA, Kozyreva OG, Song J, et al. Common genetic polymorphisms affect the human requirement for the nutrient choline. *Faseb J.* 2006;20:1336–1344.

Curro M, Gugliandolo A, Gangemi C, Risitano R, Ientile R, Caccamo D. Toxic effects of mildly elevated homocysteine concentrations in neuronal-like cells. *Neurochem Res.* 2014;39:1485–95.

Dai C, Fei Y, Li J, Shi Y, Yang X. A Novel Review of Homocysteine and Pregnancy Complications. *Biomed Res Int.* 2021 May 6;2021:6652231.

Das J, Maitra A. Maternal DNA Methylation During Pregnancy: a Review. *Reprod Sci.* 2021 Oct;28(10):2758-2769.

Dougherty T. M., Haith M. M. (1997) Infant expectations and reaction time as predictors of childhood speed of processing and IQ. *Dev. Psychol.* 33, 146–155
10.1037/0012-1649.33.1.146

Efsa N.D., Panel (EFSA Panel on Dietetic Products, Nutrition and Allergies) Dietary Reference Values for choline. *EFSA J.* 2016;14:4484.

Faeh D, Chiolerio A, Paccaud F. Homocysteine as a risk factor for cardiovascular disease: should we (still) worry about it? *Swiss Med Wkly.* 2006;136:745–56.

Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes: Thiamin, Riboflavin, Niacin, Vitamin B-6, Vitamin B12, Pantothenic Acid, Biotin, and Choline. Washington, D.C.: National Academy of Sciences; 1998. pp. 390–422.

Guerrero AL, Colvin RM, Schwartz AK, Molleston JP, Murray KF, Diehl A, Mohan P, Schwimmer JB, Lavine JE, Torbenson MS, Scheimann AO. Choline intake in a large cohort of patients with nonalcoholic fatty liver disease. *Am J Clin Nutr.* 2012 Apr;95(4):892-900.

Hylemon PB, Zhou H, Pandak WM, et al. Bile acids as regulatory molecules. *J Lipid Res.* 2009;50:1509–1520

Imbard A, Benoist JF, Blom HJ. Neural tube defects, folic acid and methylation. *Int J Environ Res Public Health.* 2013 Sep 17;10(9):4352-89. <https://pubmed.ncbi.nlm.nih.gov/24048206/>

Kohlmeier M, da Costa KA, Fischer LM, et al. Genetic variation of folate-mediated one-carbon transfer pathway predicts susceptibility to choline deficiency in humans. *Proc Natl Acad Sci U S A.* 2005;102:16025–16030

Li Z, Agellon LB, Vance DE. Phosphatidylcholine homeostasis and liver failure. *J Biol Chem.* 2005;280:37798–37802.

Liu L, Qiao S, Zhuang L, Xu S, Chen L, Lai Q, Wang W. Choline Intake Correlates with Cognitive Performance among Elder Adults in the United States. *Behav Neurol.* 2021 Oct 29;2021:2962245.

López-Sobaler AM, Lorenzo Mora AM, Salas González M^aD, Peral Suárez Á, Aparicio A, Ortega RM^a. Importancia de la colina en la función cognitiva [Importance of choline in cognitive function]. *Nutr Hosp.* 2021 Jan 13;37(Spec No2):18-23.

Mehedint MG, Zeisel SH. Choline's role in maintaining liver function: new evidence for epigenetic mechanisms. *Curr Opin Clin Nutr Metab Care.* 2013 May;16(3):339-45

Noga AA, Vance DE. A gender-specific role for phosphatidylethanolamine N-methyltransferase-derived phosphatidylcholine in the regulation of plasma high density and very low density lipoproteins in mice. *J Biol Chem.* 2003;278:21851–21859.

Olthof M, Brink E, Katan M, Verhoef P. Choline supplemented as phosphatidylcholine decreases fasting and postmethionine-loading plasma homocysteine concentrations in healthy men. *Am J Clin Nutr.* 2005;82:111–117.

Roeren M, Kordowski A, Sina C, Smollich M. Inadequate Choline Intake in Pregnant Women in Germany. *Nutrients.* 2022 Nov 17;14(22):4862.

Ross R. G., Hunter S. K., McCarthy L., Beuler J., Hutchison A. K., Wagner B. D., Leonard S., Stevens K. E., Freedman R. (2013) Perinatal choline effects on neonatal pathophysiology related to later schizophrenia risk. *Am. J. Psychiatry* 170, 290–298 [10.1176/appi.ajp.2012.12070940](https://doi.org/10.1176/appi.ajp.2012.12070940)

Seshadri S, Beiser A, Selhub J, Jacques P, Rosenberg I, D'Agostino R, Wilson P, Wolf P. Plasma homocysteine as a risk factor for dementia and Alzheimer's disease. *N Engl J Med.* 2002;346:476–483.

Shaw GM, Carmichael SL, Yang W, Selvin S, Schaffer DM. Periconceptional dietary intake of choline and betaine and neural tube defects in offspring. *Am J Epidemiol.* 2004 Jul 15;160(2):102-9.

The Homocysteine Studies Collaboration, 2002. Homocysteine and risk of ischemic heart disease and stroke. *J Am Med Assoc.* 2002;288:2015–2022.

USDA Database for the Choline Content of Common Foods, Release Two, January 2008; USDA National Nutrient Database for Standard Reference, Release 20.

Vollset S, Refsum H, Irgens L, et al. Plasma total homocysteine, pregnancy complications, and adverse pregnancy outcomes: the Hordaland Homocysteine Study. *Am J Clin Nutr.* 2000;71:962–968

Yamashita S, Kawada N, Wang W, Susaki K, Takeda Y, Kimura M, Iwama Y, Miura Y, Sugano M, Matsuoka R. Effects of egg yolk choline intake on cognitive functions and plasma choline levels in healthy middle-aged and older Japanese: a randomized double-blinded placebo-controlled parallel-group study. *Lipids Health Dis.* 2023 Jun 20;22(1):75.

Zeisel SH. Choline: critical role during fetal development and dietary requirements in adults. *Annu Rev Nutr.* 2006;26:229–250.

Zeisel SH, da Costa KA. Choline: an essential nutrient for public health. *Nutr Rev.* 2009 Nov;67(11):615-23.

Zeisel SH, Klatt KC, Caudill MA. Choline. *Adv Nutr.* 2018 Jan 1;9(1):58-60. doi: 10.1093/advances/nmx004. PMID: 29438456; PMCID: PMC6008955.

Ask the experts:

Max Lambert:

- 1) Kanadys, W.; Barańska, A.; Błaszczuk, A.; Polz-Dacewicz, M.; Drop, B.; Kanecki, K.; Malm, M. Evaluation of Clinical Meaningfulness of Red Clover (*Trifolium pratense* L.) Extract to Relieve Hot Flushes and Menopausal Symptoms in Peri- and Post-Menopausal Women: A Systematic Review and Meta-Analysis of Randomized Controlled Trials. *Nutrients* 2021, 13, 1258. <https://doi.org/10.3390/nu13041258>
- 2) Lambert MNT, Hu LM, Jeppesen PB. A systematic review and meta-analysis of the effects of isoflavone formulations against estrogen-deficient bone resorption in peri- and postmenopausal women. *Am J Clin Nutr.* 2017 Sep;106(3):801-811. doi: 10.3945/ajcn.116.151464. Epub 2017 Aug 2. PMID: 28768649.
- 3) Wickham, Kate A., et al. "Short-term supplementation with fermented red clover extract reduces vascular inflammation in early post-menopausal women." *Frontiers in cardiovascular medicine* 9 (2022): 826959
- 4) Lambert MNT, Thorup AC, Hansen ESS, Jeppesen PB. Combined Red Clover isoflavones and probiotics potently reduce menopausal vasomotor symptoms. *PLoS One.* 2017 Jun 7;12(6):e0176590. doi: 10.1371/journal.pone.0176590. PMID: 28591133; PMCID: PMC5462345.
- 5) Lambert MNT, Thybo CB, Lykkeboe S, Rasmussen LM, Frette X, Christensen LP, Jeppesen PB. Combined bioavailable isoflavones and probiotics improve bone status and estrogen metabolism in postmenopausal osteopenic women: a randomized controlled trial. *Am J Clin Nutr.* 2017 Sep;106(3):909-920. doi: 10.3945/ajcn.117.153353. Epub 2017 Aug 2. PMID: 28768651.
- 6) Arcoraci V, Atteritano M, Squadrito F, D'Anna R, Marini H, Santoro D, Minutoli L, Messina S, Altavilla D, Bitto A. Antiosteoporotic Activity of Genistein Aglycone in Postmenopausal Women: Evidence from a Post-Hoc Analysis of a Multicenter Randomized Controlled Trial. *Nutrients.* 2017 Feb 22;9(2):179. doi: 10.3390/nu9020179. PMID: 28241420; PMCID: PMC5331610.

References In Focus May

Camilla Gray:

1. NHS. (2023). *Autism Statistics, January to December 2022*. [Online]. NHS. Last Updated: 9 Mar 2023. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/autism-statistics/january-to-de> [Accessed 22 March 2024].

2. NHS. (2023). *Autism statistics, January to December 2023*. [Online]. Last Updated: 14 March 2024. Available at: <https://digital.nhs.uk/data-and-information/publications/statistical/autism-statistics> [Accessed 5 April 2024]
3. Mayo Clinic 2018. What causes Autism? <https://www.mayoclinic.org/diseases-conditions/autism-spectrum-disorder/symptoms-causes/syc-2035292>
4. Pantazi AC, et al., (2023). Development of Gut Microbiota in the First 1000 Days after Birth and Potential Interventions. *Nutrients*. 2023 15(16):3647. doi: 10.3390/nu15163647.
5. Grivas G, Frye R, Hahn J. Pregnant Mothers' Medical Claims and Associated Risk of Their Children being Diagnosed with Autism Spectrum Disorder. *J Pers Med*. 2021 Sep 24;11(10):950
6. Ayubi E, Mansori K. Maternal Infection during Pregnancy and Attention-Deficit Hyperactivity Disorder in Children: A Systematic Review and Meta-Analysis. *Iran J Public Health*. 2022 Dec;51(12):2674-2687
7. Al-Haddad BJS, Jacobsson B, Chabra S, Modzelewska D, Olson EM, Bernier R, Enquobahrie DA, Hagberg H, Östling S, Rajagopal L, Adams Waldorf KM, Sengpiel V. Long-term Risk of Neuropsychiatric Disease After Exposure to Infection In Utero. *JAMA Psychiatry*. 2019 Jun 1;76(6):594-602
8. NHS. (2019). *Perinatal mental health*. [Online]. NHS. Last Updated: 2019. Available at: <https://www.england.nhs.uk/mental-health/perinatal/> [Accessed 22 March 2024].
9. Avalos LA, Chandran A, Churchill ML, Gao X, Ames JL, Nozadi SS, Roubinov D, Brennan PA, Bush NR, Camargo CA, Carroll KN, Cioffi CC, Ferrara A, Goldson B, Hedderson MM, Hipwell AE, Kerver, JM, O'Connor TG, Porucznik CA, Shuffrey LC, Talavera-Barber MM, Wright RJ, Zhu Y, Croen LA; Program Collaborators for Environmental influences on Child Health Outcomes. Prenatal depression and risk of child autism-related traits among participants in the Environmental influences on Child Health Outcomes program. *Autism Res*. 2023 Sep;16(9):1825-1835
10. Nidey NL, Momany AM, Strathearn L, Carter KD, Wehby GL, Bao W, Xu G, Scheiber FA, Tabb K, Froehlich TE, Ryckman K. Association between perinatal depression and risk of attention deficit hyperactivity disorder among children: a retrospective cohort study. *Ann Epidemiol*. 2021 Nov;63:1-6
11. Christaki V, Ismirnioglou I, Katrali A, Panagouli E, Tzila E, Thomaidis L, Psaltopoulou T, Sergentanis TN, Tsitsika A. Postpartum depression and ADHD in the offspring: Systematic review and metaanalysis. *J Affect Disord*. 2022 Dec 1;318:314-330
12. Uguz F. Maternal Antidepressant Use During Pregnancy and the Risk of Attention-Deficit/Hyperactivity Disorder in Children: A Systematic Review of the Current Literature. *J Clin Psychopharmacol*. 2018 Jun;38(3):254-259
13. Njotto, L.L., Simin, J., Fornes, R. et al. Maternal and Early-Life Exposure to Antibiotics and the Risk of Autism and Attention-Deficit Hyperactivity Disorder in Childhood: a Swedish Population-Based Cohort Study. *Drug Saf* 46, 467–478 (2023).
14. D, Banaschewski T, Asherson P, Kuntsi J. Association of Preterm Birth With Attention-Deficit/Hyperactivity Disorder-Like and Wider-Ranging Neurophysiological Impairments of Attention and Inhibition. *J Am Acad Child Adolesc Psychiatry*. 2017 Jan;56(1):40-50
15. Allen L, Leon-Attia O, Shaham M, Shefer S, Gabis LV. Autism risk linked to prematurity is more accentuated in girls. *PLoS One*. 2020 Aug 27;15(8)

16. Cecilie Dahl, Hein Stigum, Jørgen Valeur, Nina Iszatt, Virissa Lenters, Shyamal. (2018). Preterm infants have distinct microbiomes not explained by mode of delivery, breastfeeding duration or antibiotic exposure. *International Journal of Epidemiology*. 47(5), p.1658–1669.
17. Hill C et al., (2017). Evolution of gut microbiota composition from birth to 24 weeks in the INFANTMET Cohort. *Microbiome*. 5 (4).
18. Strandwitz P. Neurotransmitter modulation by the gut microbiota. *Brain Res*. 2018 Aug 15;1693(Pt B):128-133
19. Lin P, Zhang Q, Sun J, Li Q, Li D, Zhu M, Fu X, Zhao L, Wang M, Lou X, Chen Q, Liang K, Zhu Y, Qu C, Li Z, Ma P, Wang R, Liu H, Dong K, Guo X, Cheng X, Sun Y and Sun J (2024) A comparison between children and adolescents with autism spectrum disorders and healthy controls in biomedical factors, trace elements, and microbiota biomarkers: a meta-analysis. *Front. Psychiatry* 14:1318637. doi: 10.3389/fpsy.2023.1318637
20. Lee L, Ser H, Khan TM, et al., (2019). Relationship between autism and gut microbiome: current status and update. *Gut* 2019; **68**:A40-A41.
21. Yuanpeng Zheng, Naika Z. Prince , Lucia N. Peralta Marzal , Sabbir Ahmed. (2022). The Autism Spectrum Disorder-Associated Bacterial Metabolite p-Cresol Derails the Neuroimmune Response of Microglial Cell. *International Journal of Molecular Sciences*. 23(19), p.11013.
22. Pärtty A et al., (2015). A possible link between early probiotic intervention and the risk of neuropsychiatric disorders later in childhood: a randomized controlled trial. *Nature*. 77(6), pp.823-8.
23. Wang N et al., (2022). Composition of the Gut Microbiota in Attention Deficit Hyperactivity Disorder: A Systematic Review and Meta-Analysis. *Front Endocrinol (Lausanne)*. 18;13:838941. doi: 10.3389/fendo.2022.838941.
24. Lee MJ et al., (2022). Association between Gut Microbiota and Emotional-Behavioral Symptoms in Children with Attention-Deficit/Hyperactivity Disorder. *J Pers Med*. 2;12(10):1634. doi: 10.3390/jpm12101634.
25. Wang LJ, Li SC, Yeh YM, Lee SY, Kuo HC, Yang CY. Gut microbiome dysbiosis and its impact on intestinal permeability in attention-deficit/hyperactivity disorder. *J Child Psychol Psychiatry*. 2023 Sep;64(9):1280-1291
26. Strati F et al., (2017). New evidence on the altered gut microbiota in ASD. *Microbiome*. 5:4 <https://doi.org/10.1186/s40168-017-0242-1>
27. Xu M et al., (2019). Association Between Gut Microbiota and Autism Spectrum Disorder: A Systematic Review and Meta-Analysis. *Front Psychiatry*. 17;10:473. doi: 10.3389/fpsy.2019.00473.
28. McKeown C et al., (2013). Association of Constipation and Fecal Incontinence With Attention-Deficit/Hyperactivity Disorder. *Pediatrics*. 132(5), p.e1210–e1215.
29. Russo, E Karadja, F De Seta. (2018). Evidence-based mixture containing Lactobacillus strains and lactoferrin to prevent recurrent bacterial vaginosis: a double-blind study. *Beneficial Microbes*. 10(1), pp.19 - 26.
30. Slykerman R et al. (2017). Effect of Lactobacillus rhamnosus HN001 in pregnancy on postpartum symptoms of depression and anxiety: a randomised double blind placebo controlled trial. *EBioMedicine*, 24, 159-165.
31. Prescott SL et al. (2008). Supplementation with Lactobacillus rhamnosus or Bifidobacterium lactis probiotics in pregnancy increases cord blood IFN γ and

- breast milk transforming growth factor B and immunoglobulin A detection. *Clinical and experimental Allergy* , 38 (10): 1606- 1614.
32. Chua MC et al. (2017). Effect of synbiotic on the gut microbiota of Cesarean delivered infants. A randomised, double blind, multicenter study. *Journal of Pediatric Gastroenterology and Nutrition*, 65 (1): 102-106.
 33. McFarland L et al., (2021). Strain-specific and outcome-specific efficacy of probiotics for the treatment of irritable bowel syndrome: A systematic review and meta-analysis. *EClinicalMedicine*. 18;41:101154. doi: 10.1016/j.eclinm.2021.101154.
 34. Sudha MR et al., (2018). Efficacy of Bacillus coagulans Unique IS2 in treatment of irritable bowel syndrome in children: a double blind, randomised placebo controlled study. *Benef Microbes*. 15;9(4):563-572. doi: 10.3920/BM2017.0129.
 35. Saneian, H. *et al.* (2013) 'Comparison of Lactobacillus Sporogenes plus mineral oil and mineral oil alone in the treatment of childhood functional constipation', *J Res Med Sci*, 18(2), pp. 85–8.
 36. Zengbin L et al., (2021) Which Probiotic Is the Most Effective for Treating Acute Diarrhea in Children? A Bayesian Network Meta-Analysis of Randomized Controlled Trials. *Nutrients*, 13: 4319.
 37. McFarland LV et al., (2010). Systematic review and meta-analysis of *Saccharomyces boulardii* in adult patients. *World J Gastroenterol*. 14;16(18):2202-22. doi: 10.3748/wjg.v16.i18.2202.
 38. Thoma M. V., Rohleder N., Rohner S. L. (2021). Clinical ecopsychology: the mental health impacts and underlying pathways of the climate and environmental crisis. *Front. Psychiatry* 12, 675936. doi: 10.3389/fpsy.2021.675936
 39. Helmut Niederhofer. (2011). Association of Attention-Deficit/Hyperactivity Disorder and Celiac Disease: A Brief Report. *Prim Care Companion CNS Disord*. 13(3), p.1

Lindsay Powers:

- [1] <https://pubmed.ncbi.nlm.nih.gov/16225487/>
- [2] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4027835/>
- [3] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4564526/>
- [4] <https://diabetesjournals.org/diabetes/article/58/7/1509/15689/Butyrate-Improves-Insulin-Sensitivity-and>
- [5] <https://pubmed.ncbi.nlm.nih.gov/9626487/>
- [6] <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4258155/>

Dr Zoue Lloyd-Wright:

(al, Published: 4 July 2020) (al, Published: 4 July 2020) (Li, Gut Microbiota and Iron: The Crucial Actors in Health and Disease) (Li, Gut Microbiota and Iron: The Crucial Actors in Health and Disease) (Rusu, Published: 4 July 2020) AlNadhari S, A.-E. N. (2021 Mar). A review on biogenic synthesis of metal nanoparticles using marine algae and its applications. *Environ Res*, Mar;194:110672.

Antiviral activity of mycosynthesized silver nanoparticles against herpes simplex virus and human parainfluenza virus type 3. (DOI: 10.2147/IJN.S50070 · Source: PubMed). *Article in International Journal of Nanomedicine* · November 2013.

Benedikt Schaefer 1, E. M. (2020 May 19.). Intravenous iron supplementation therapy. *Epub* .

CNMO, E. J. ((June 2003) 13(2), 109–118). Viral Pathogens and Severe Acute Respiratory Syndrome: Oligodynamic Ag1 for Direct Immune Intervention. *Journal of Nutritional & Environmental Medicine* , 13(2), 109–118.

CNMO, E. J. (June 2003). Viral Pathogens and Severe Acute Respiratory Syndrome: Oligodynamic Ag1 for Direct Immune Intervention. *Journal of Nutritional & Environmental Medicine*, 13(2), 109–118.

Editorial: Iron Nutrition and Interactions in Plants. (EDITORIAL published: 10 January 2020). In S. T. Wolfgang Schmidt^{1*}, *1 Institute for Plant and Microbial Biology, Taipei, Taiwan, 2 Institute de Biologie Intégrative de la Cellule (I2BC), Gif-sur-Yvette, France, 3 Institute of Biology, Humboldt University of Berlin, Berlin, Germany.* doi: 10.3389/fpls.2019.01670.

Elif Piskin 1, D. C. (2022 Jun 10:7 (24)). Iron Absorption: Factors, Limitations, and Improvement Methods. *ACS Omega*, 20441-20456.

Fairweather-Tait, S. J. (1997 Nov;78 Suppl 2:S95-100. doi: 10.1079/bjn19970224.). From absorption and excretion of minerals ... to the importance of bioavailability and adaptation. *British Journal of Nutrition*, PMID: 9389874.

Intravenous iron therapy: how far have we come? . (n.d.).

Intravenous Irons: From Basic Science to Clinical Practice. (n.d.). (Li, Gut Microbiota and Iron: The Crucial Actors in Health and Disease) (Rusu, Published: 4 July 2020)

Jonathan J. Powell, P. S. (n.d.).

Jonathan J. Powell, P. S. (2014 Oct: 10(7)). A nano-disperse ferritin-core mimetic that efficiently corrects anemia without luminal iron redox activity. *Nanomedicine*, 1529-1538.

Khan, M. A. (2018, VOL. 46, NO. S1, S1149–S1158 <https://doi.org/10.1080/21691401.2018.1446968>). Nano-gold displayed anti-inflammatory property via NF-kB pathways by suppressing COX-2 activity. *ARTIFICIAL CELLS, NANOMEDICINE, AND BIOTECHNOLOGY*.

Michael F. Hochella Jr., 1. S. (2008). Nanominerals, Mineral Nanoparticles, and Earth Systems. *Science* 319, 1631 , DOI: 10.1126/science.1141134.

Muniyandi Jeyaraj y, S. G.-H.-H. (Received: 6 November 2019; Accepted: 25 November 2019; Published: 2 December 2019). Review A Comprehensive Review on the Synthesis, Characterization, and Biomedical Application of Platinum Nanoparticles. *Nanomaterials* 2019, 9, 1719; doi:10.3390/nano9121719.

- Murthy, S. K. (2007 Jun; 2(2)). Nanoparticles in modern medicine: State of the art and future challenges. *Int J Nanomedicine*. Published online, 129-141.
- S C BAETKE, M. T. (2015;). NANOPARTICLES FOR DIAGNOSTIC IMAGING AND RADIOTHERAPY SPECIAL FEATURE: REVIEW ARTICLE Applications of nanoparticles for diagnosis and therapy of cancer. *Published by the British Institute of Radiology*.
- Shivraj Hariram Nile¹ *, V. B. (2020 (12:45)). Nanotechnologies in Food Science: Applications, Recent Trends, and Future Perspectives. *Cite as Nano-Micro Lett.* .
- Sunil Bhandari, 1. D. (n.d.). *Intravenous Irons: From Basic Science to Clinical Practice* .
- Thomas Ems; Kayla St Lucia; Martin R. Huecker. (April 21, 2022.). Biochemistry, Iron Absorption.
- Veno Kononenko¹, M. N. (2015). Nanoparticle interaction with the immune system. *Arh Hig Rada Toksikol* 2015;66:97-108.
- Wilson Sim 1, R. T. (Received: 20 August 2018; Accepted: 16 October 2018; Published: 26 October 2018). Antimicrobial Silver in Medicinal and Consumer Applications: A Patent Review of the Past Decade (2007–2017). *antibiotics*.
- Yasin Torres-Tiji 1, F. J. (2020 Mar 16.). Microalgae as a future food source . *Epub* , PMID: 32194145 DOI: 10.1016/j.biotechadv.2020.107536.

Debbie Grayson:

1. Koyyada, A. (2020). Long-term use of proton pump inhibitors as a risk factor for various adverse manifestations. *Therapies*, 76(1). doi: <https://doi.org/10.1016/j.therap.2020.06.019>
2. Long term proton pump inhibitor use: An insight into its complications. (2021). www.bmj.com, [online] p.l6483. Available at: <https://www.bmj.com/content/367/bmj.l6483/rr-1>.
3. Tobias, A. and Sadiq, N.M. (2022). Physiology, Gastrointestinal Nervous Control. [online] PubMed. Available at: <https://www.ncbi.nlm.nih.gov/books/NBK545268/#:~:text=Enteric%20nervous%20system%2D%20is%20the>
4. Shin, J.M. and Kim, N. (2013). Pharmacokinetics and Pharmacodynamics of the Proton Pump Inhibitors. *Journal of Neurogastroenterology and Motility*, [online] 19(1), pp.25–35. doi: <https://doi.org/10.5056/jnm.2013.19.1.25>
5. Wilson, J.A., Stocken, D.D., Watson, G.C., Fouweather, T., McGlashan, J., MacKenzie, K., Carding, P., Karagama, Y., Harries, M., Ball, S., Khwaja, S., Costello, D., Wood, R., Lecouturier, J. and O'Hara, J. (2021). Lansoprazole for persistent throat symptoms in secondary care: the TOPPITS RCT. *Health Technology Assessment (Winchester, England)*, [online] 25(3), pp.1–118. doi: <https://doi.org/10.3310/hta25030>.
6. Helgadottir and Bjornsson (2019). Problems Associated with Deprescribing of Proton Pump Inhibitors. *International Journal of Molecular Sciences*, 20(21), p.5469. doi:<https://doi.org/10.3390/ijms20215469>
7. Newberry, C. and Lynch, K. (2019). The role of diet in the development and

management of gastroesophageal reflux disease: why we feel the burn.
Journal of Thoracic Disease, [online] 11(S12), pp.1594–1601.
doi: <https://doi.org/10.21037/jtd.2019.06.42>

8. Konturek, P.C., Brzozowski, T. and Konturek, S.J. (2011). Stress and the gut: pathophysiology, clinical consequences, diagnostic approach and treatment options. Journal of Physiology and Pharmacology: An Official Journal of the Polish Physiological Society, 62(6), pp.591–599.