

Immune health feature:

Catherine Gorman:

<https://pubmed.ncbi.nlm.nih.gov/29099763/>
<https://www.bmj.com/content/378/bmj.o1822>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2277319/>
https://academic.oup.com/jn/article/133/5/1457S/4558526?ijkey=0cc6b64a7a47fb399cb43bcd0c2f610030724f8&keytype=tf_ipsecsha&login=false
<https://www.nature.com/articles/s41422-020-0332-7>
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3256323/>

Keri Briggs:

Ader, R., Felten, D. L., & Cohen, N. (2001). *Psychoneuroimmunology* (3rd ed.). San Diego, CA: Academic Press

Ahmed M., Henson D.A., Sanderson M.C., Nieman D.C., Zubeldia J.M., Shanely R.A. Rhodiola rosea exerts antiviral activity in athletes following a competitive marathon race. *Front. Nutr.* 2015;2:24.

Akramiene D, Kondrotas A, Didziapetriene J, Kevelaitis E. Effects of beta-glucans on the immune system. *Medicina (Kaunas)*. 2007;43(8):597-606.

Anderson R., Oosthuizen R., Maritz R., Theron A., Van Rensburg A.J. The effects of increasing weekly doses of ascorbate on certain cellular and humoral immune functions in normal volunteers. *Am. J. Clin. Nutr.* 1980;33:71–76.

Anstead MI, Hunt TA, Carlson SL, Burki NK. Variability of peripheral blood lymphocyte beta-2-adrenergic receptor density in humans. *American Journal of Respiratory and Critical Care Medicine*. 1998;157:990–992.

Barnett J. B., Dao M. C., Hamer D. H., et al. Effect of zinc supplementation on serum zinc concentration and T cell proliferation in nursing home elderly: A randomized, double-blind, placebo-controlled trial. *2016;103(3):942–951.*

Barrett B. Medicinal properties of Echinacea: a critical review. *Phytomedicine*. 2003;10:66–86.

Besedovsky L, Lange T, Born J. Sleep and immune function. *Pflugers Arch*. 2012 Jan;463(1):121-37. doi: 10.1007/s00424-011-1044-0

Borregaard N, Cowland JB (1997) Granules of the human neutrophilic polymorphonuclear leukocyte. *Blood* 89:3503–3521

Boura P., Tsapas G., Papadopoulou A., Magoula I., Kountouras G. Monocyte locomotion in anergic chronic brucellosis patients: The in vivo effect of ascorbic acid. *Immunopharmacol. Immunotoxicol.* 1989;11:119–129.

Carr AC, Maggini S. Vitamin C and Immune Function. *Nutrients*. 2017 Nov 3;9(11):1211.

Caruso TJ, Gwaltney JM., Jr Treatment of the common cold with Echinacea: a structured review. *Clin Infect Dis*. 2005;40:807–810.

Cheong JG, Ravishankar A, Sharma S, Parkhurst CN, Grassmann SA, Wingert CK, Laurent P, Ma S, Paddock L, Miranda IC, Karakaslar EO, Nehar-Belaid D, Thibodeau A, Bale MJ, Kartha VK, Yee JK, Mays MY, Jiang C, Daman AW, Martinez de Paz A, Ahimovic D, Ramos V, Lercher A, Nielsen E, Alvarez-Mulett S, Zheng L, Earl A, Yallowitz A, Robbins L, LaFond E, Weidman KL, Racine-Brzostek S, Yang HS, Price DR, Leyre L, Rendeiro AF, Ravichandran H, Kim J, Borczuk AC, Rice CM, Jones RB, Schenck EJ, Kaner RJ, Chadburn A, Zhao Z, Pascual V, Elemento O, Schwartz RE,

Buenrostro JD, Niec RE, Barrat FJ, Lief L, Sun JC, Ucar D, Josefowicz SZ. Epigenetic memory of coronavirus infection in innate immune cells and their progenitors. *Cell*. 2023 Aug 31;186(18):3882-3902.e24.

Daïen CI, Tan J, Audo R, Mielle J, Quek LE, Krycer JR. Detrimental Impact of Microbiota-Accessible Carbohydrate-Deprived Diet on Gut and Immune Homeostasis: An Overview. *Front Immunol* (2017) 8:548.

De Marco Castro E, Calder PC, Roche HM. β -1,3/1,6-Glucans and Immunity: State of the Art and Future Directions. *Mol Nutr Food Res*. 2021 Jan;65(1)

Dharsono T, Rudnicka K, Wilhelm M, Schoen C. Effects of Yeast (1,3)-(1,6)-Beta-Glucan on Severity of Upper Respiratory Tract Infections: A Double-Blind, Randomized, Placebo-Controlled Study in Healthy Subjects. *J Am Coll Nutr*. 2019 Jan;38(1):40-50.

Fuller R, Moore MV, Lewith G, Stuart BL, Ormiston RV, Fisk HL, Noakes PS, Calder PC. Yeast-derived β -1,3/1,6 glucan, upper respiratory tract infection and innate immunity in older adults. *Nutrition*. 2017 Jul-Aug;39-40:30-35.

Ginde AA, Mansbach JM, Camargo CA., Jr. Association between serum 25-hydroxyvitamin D level and upper respiratory tract infection in the Third National Health and Nutrition Examination Survey. *Arch Intern Med*. 2009;169(4):384–90.

Gregori S, et al. Regulatory T cells induced by 1 α ,25-dihydroxyvitamin D3 and mycophenolate mofetil treatment mediate transplantation tolerance. *J Immunol*. 2001;167(4):1945–53.

Haase. H, Rink. L. Multiple impacts of zinc on immune function, *Metallomics*, Volume 6, Issue 7, July 2014, Pages 1175–1180

Hawkins J, Baker C, Cherry L, Dunne E. Black elderberry (*Sambucus nigra*) supplementation effectively treats upper respiratory symptoms: A meta-analysis of randomized, controlled clinical trials. *Complement Ther Med*. 2019 Feb;42:361-365. InformedHealth.org [Internet]. Cologne, Germany: Institute for Quality and Efficiency in Health Care (IQWiG); 2006-. The innate and adaptive immune systems. [Updated 2020 Jul 30].

Jawad M., Schoop R., Suter A., Klein P., Eccles R. Safety and efficacy profile of *Echinacea purpurea* to prevent common cold episodes: A randomized, double-blind, placebo-controlled trial. 2012;2012:7.

Jesenak M, Hrubisko M, Majtan J, Rennerova Z and Banovcin P, Anti-allergic effect of Pleuran (beta-glucan from *Pleurotus ostreatus*) in children with recurrent respiratory tract infections, *Phytother. Res.*, 2014, 28, 471–474.

Jippo T, Suzuki T, Sato H, Kobayashi Y and Shigekawa M, Water-soluble low-molecular-weight β -(1, 3–1, 6) D-Glucan inhibit cedar pollinosis, *Funct. Foods Health Dis.*, 2015, 5, 80–88.

Kiecolt-Glaser JK, Glaser R. Methodological issues in behavioral immunology research with humans. *Brain, Behavior, and Immunity*. 1988;2:67–78.

Kirmaz C, Bayrak P, Yilmaz O and Yuksel H. Effects of glucan treatment on the Th1/Th2 balance in patients with allergic rhinitis: a double-blind placebo-controlled study, *Eur. Cytokine Network*, 2005, 16, 128–134.

Klebanoff SJ (1967) Iodination of bacteria: a bactericidal mechanism. *J Exp Med* 126: 1063–1078

Krawitz C, Mraheil MA, Stein M, Imirzalioglu C, Domann E, Pleschka S, Hain T. Inhibitory activity of a standardized elderberry liquid extract against clinically-relevant human respiratory bacterial pathogens and influenza A and B viruses. *BMC Complement Altern Med*. 2011;11(1):16.

Laaksi I, et al. An association of serum vitamin D concentrations < 40 nmol/L with acute respiratory tract infection in young Finnish men. *Am J Clin Nutr*. 2007;86(3):714–7.

Levy R., Shriker O., Porath A., Riesenbergr K., Schlaeffer F. Vitamin C for the treatment of recurrent furunculosis in patients with impaired neutrophil functions. *J. Infect. Dis.* 1996;173:1502–1505.

Liu PT, et al. Toll-like receptor triggering of a vitamin D-mediated human antimicrobial response. *Science*. 2006;311(5768):1770–3

Lu W.S.Z., Cao X.W.S.F. Early use of Chinese drug rhodiola compound for patients with thoracic operation in prevention of ALI. *Med. J. Natl. Defending Forces Northwest China*. 2004;2

Mackinnon L.T., Chick T.W., van As A., Tomasi T.B. The effect of exercise on secretory and natural immunity. *Adv Exp Med Biol*. 1987;216A:869–876.

Mahalanabis D., Lahiri M., Paul D., et al. Randomized, double-blind, placebo-controlled clinical trial of the efficacy of treatment with zinc or vitamin A in infants and young children with severe acute lower respiratory infection. 2004;79(3):430–436.

Malech HL, Deleo FR, Quinn MT. The role of neutrophils in the immune system: an overview. *Methods Mol Biol*. 2014;1124:3-10.

Nieman D.C., Tan S.A., Lee J.W., Berk L.S. Complement and immunoglobulin levels in athletes and sedentary controls. *Int J Sports Med*. 1989;10:124–128.

Nieman D.C., Johanssen L.M., Lee J.W., Arabatzis K. Infectious episodes in runners before and after the Los Angeles Marathon. *J Sports Med Phys Fitness*. 1990;30:316–328.

O'Neill W, McKee S, Clarke AF. Immunological and haematinic consequences of feeding a standardised Echinacea (*Echinacea angustifolia*) extract to healthy horses. *Equine Vet J*. 2002;34:222–227.

Panossian A, Brendler T. The Role of Adaptogens in Prophylaxis and Treatment of Viral Respiratory Infections. *Pharmaceuticals (Basel)*. 2020 Sep 8;13(9):236.

Parkin J, Cohen B. An overview of the immune system. *Lancet*. 2001 Jun 2;357(9270):1777-89.

Quintin J, Saeed S, Martens JHA, Giamarellos-Bourboulis EJ, Ifrim DC, Logie C, Jacobs L, Jansen T, Kullberg BJ, Wijmenga C, Joosten LAB, Xavier RJ, van der Meer JWM, Stunnenberg HG, Netea MG. *Candida albicans* infection affords protection against reinfection via functional reprogramming of monocytes. *Cell Host Microbe*. 2012 Aug 16;12(2):223-32.

Rondanelli M, Miccono A, Lamburghini S, Avanzato I, Riva A, Allegrini P, Faliva MA, Peroni G, Nichetti M, Perna S. Self-Care for Common Colds: The Pivotal Role of Vitamin D, Vitamin C, Zinc, and Echinacea in Three Main Immune Interactive Clusters (Physical Barriers, Innate and Adaptive Immunity) Involved during an Episode of Common Colds-Practical Advice on Dosages and on the Time to Take These Nutrients/Botanicals in order to Prevent or Treat Common Colds. *Evid Based Complement Alternat Med*. 2018 Apr 29;2018

Sarchet P. WHAT EFFECT DID LOCKDOWNS HAVE ON CHILDREN'S IMMUNE SYSTEMS? *New Sci*. 2023 Feb 4;257(3424):38-39.

Scaglione F., Weiser K., Alessandria M. Effects of the Standardised Ginseng Extract G115® in Patients with Chronic Bronchitis. *Clin. Drug Investig*. 2001;21:41–45.

Segerstrom SC, Miller GE. Psychological stress and the human immune system: a meta-analytic study of 30 years of inquiry. *Psychol Bull*. 2004 Jul;130(4):601-30.

Shadrin A.S., Kustikova Y.G., Belogolovkina N.A. New Data on Eleutherococcus Proceedings of the II International Symposium on Eleutherococcus, Moscow, USSR, 1984. Far East Academy of Sciences of the USSR; Vladivostok, USSR: 1986.

Estimation of prophylactic and immunostimulating effects of Eleutherococcus and Schizandra chinensis preparations; pp. 213–215.

Speroni E, Govoni P, Guizzardi S, Renzulli C, Guerra MC. Anti-inflammatory and cicatrizing activity of *Echinacea pallida* Nutt root extract. *J Ethnopharmacol.* 2002;79:265–272.

Tajima S., Pinnell S.R. Ascorbic acid preferentially enhances type I and III collagen gene transcription in human skin fibroblasts. *J. Dermatol. Sci.* 1996;11:250–253.

Talbott SM, Talbott JA, Talbott TL and Dingler E. beta-Glucan supplementation, allergy symptoms, and quality of life in self-described ragweed allergy sufferers, *Food Sci. Nutr.*, 2013, 1, 90–101.

Tanaka M., Muto N., Gohda E., Yamamoto I. Enhancement by ascorbic acid 2-glucoside or repeated additions of ascorbate of mitogen-induced IgM and IgG productions by human peripheral blood lymphocytes. *Jpn. J. Pharmacol.* 1994;66:451–456.

Torabian G, Valtchev P, Adil Q, Dehghani F. Anti-influenza activity of elderberry (*Sambucus nigra*) *J Funct Foods.* 2019;54:353–360.

Urashima M, Segawa T, Okazaki M, Kurihara M, Wada Y, Ida H. Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *Am J Clin Nutr.* 2010 May;91(5):1255-60.

Vlassopoulou M, Yannakoulia M, Pletsa V, Zervakis GI, Kyriacou A. Effects of fungal beta-glucans on health - a systematic review of randomized controlled trials. *Food Funct.* 2021 Apr 26;12(8):3366-3380.

Wessels I, Maywald M, Rink L. Zinc as a Gatekeeper of Immune Function. *Nutrients.* 2017 Nov 25;9(12):1286.

Wieland LS, Piechotta V, Feinberg T, Ludeman E, Hutton B, Kanji S, Seely D, Garritty C. Elderberry for prevention and treatment of viral respiratory illnesses: a systematic review. *BMC Complement Med Ther.* 2021 Apr 7;21(1):112.

Zhai Z, Liu Y, Wu L, Senchina DS, Wurtele ES, Murphy PA, Kohut ML, Cunnick JE. Enhancement of innate and adaptive immune functions by multiple *Echinacea* species. *J Med Food.* 2007 Sep;10(3):423-34.

Zhong K, Liu Z, Lu Y, Xu X. Effects of yeast β -glucans for the prevention and treatment of upper respiratory tract infection in healthy subjects: a systematic review and meta-analysis. *Eur J Nutr.* 2021 Dec;60(8):4175-4187.

Collagen feature:

Keri Briggs:

Dalvie D, Cosker T, Boyden T, Zhou S, Schroeder C, Potchoiba MJ. Metabolism Distribution and Excretion of a Matrix Metalloproteinase-13 Inhibitor, 4-[4-(4-Fluorophenoxy)-benzenesulfonylamino]tetrahydropyran-4-carboxylic Acid Hydroxyamide (CP-544439), in Rats and Dogs: Assessment of the Metabolic Profile of CP-544439 in Plasma and Urine of Humans *Drug Metabolism and Disposition* September 1, 2008, 36 (9) 1869-1883.

Fisher GJ, Datta SC, Talwar HS, Wang ZQ, Varani J, Kang S, Voorhees JJ. The molecular basis of sun-induced premature skin ageing and retinoid antagonism. *Nature (London)* 1996;379:335–338.

Gabor M. Pharmacologic effects of flavonoids on blood vessels. *Angiologica.* 1972;9:355–374.

García-Coronado JM, Martínez-Olvera L, Elizondo-Omaña RE, Acosta-Olivo CA, Vilchez-Cavazos F, Simental-Mendía LE, Simental-Mendía M. Effect of collagen supplementation on osteoarthritis symptoms: a meta-analysis of randomized placebo-controlled trials. *Int Orthop.* 2019 Mar;43(3):531-538.

Hexsel D, Zague V, Schunck M, Siega C, Camozzato FO, Oesser S. Oral supplementation with specific bioactive collagen peptides improves nail growth and reduces symptoms of brittle nails. *J Cosmet Dermatol*. 2017 Dec;16(4):520-526.

Kim, S., Park, Y., Paik, H., & Chang, H. (2011). Effect of anthocyanins on expression of matrix metalloproteinase-2 in naproxen-induced gastric ulcers. *British Journal of Nutrition*, 106(12), 1792-1801.

Kleinnijenhuis AJ, van Holthoon FL, Maathuis AJH, Vanhoecke B, Prawitt J, Wauquier F, Wittrant Y. Non-targeted and targeted analysis of collagen hydrolysates during the course of digestion and absorption. *Anal Bioanal Chem*. 2020 Feb;412(4):973-982.

León-López A, Morales-Peñaloza A, Martínez-Juárez VM, Vargas-Torres A, Zeugolis DI, Aguirre-Álvarez G. Hydrolyzed Collagen-Sources and Applications. *Molecules*. 2019 Nov 7;24(22):4031.

Murray MT, (2020) *Vaccinium myrtillus* (Bilberry) in Textbook of Natural Medicine (Fifth Edition), 2020

Nanashima N, Horie K, Maeda H, Tomisawa T, Kitajima M, Nakamura T. Blackcurrant Anthocyanins Increase the Levels of Collagen, Elastin, and Hyaluronic Acid in Human Skin Fibroblasts and Ovariectomized Rats. *Nutrients*. 2018 Apr 16;10(4):495.

Oesser, Steffen. "The oral intake of specific Bioactive Collagen Peptides has a positive effect on hair thickness." (2020).

Osorio R, Yamauti M, Osorio E, Ruiz-Requena ME, Pashley DH, Tay FR, Toledano M. Zinc reduces collagen degradation in demineralized human dentin explants. *J Dent*. 2011 Feb;39(2):148-53.

Proksch E, Segger D, Degwert J, Schunck M, Zague V, Oesser S. Oral supplementation of specific collagen peptides has beneficial effects on human skin physiology: a double-blind, placebo-controlled study. *Skin Pharmacol Physiol*. 2014;27(1):47-55.

Pullar JM, Carr AC, Vissers MCM. The Roles of Vitamin C in Skin Health. *Nutrients*. 2017 Aug 12;9(8):866.

Varani J, Dame MK, Rittie L, Fligiel SE, Kang S, Fisher GJ, Voorhees JJ. Decreased collagen production in chronologically aged skin: roles of age-dependent alteration in fibroblast function and defective mechanical stimulation. *Am J Pathol*. 2006 Jun;168(6):1861-8.

Wang H. A Review of the Effects of Collagen Treatment in Clinical Studies. *Polymers (Basel)*. 2021 Nov 9;13(22):3868.

Zdzieblik D, Oesser S, Gollhofer A, König D. Improvement of activity-related knee joint discomfort following supplementation of specific collagen peptides. *Appl Physiol Nutr Metab*. 2017 Jun;42(6):588-595.

Laura Dwyer:

1. Barati, M., Jabbari, M., Navekar, R., Farahmand, F., Zeinalian, R., Salehi-Sahlabadi, A., ... Davoodi, S. H. (2020). Collagen supplementation for skin health: A mechanistic systematic review. *Journal of Cosmetic Dermatology*. doi:10.1111/jocd.13435
2. Deshmukh, S. N., Dive, A. M., Moharil, R., & Munde, P. (2016). Enigmatic insight into collagen. *Journal of oral and maxillofacial pathology: JOMFP*, 20(2), 276
3. Panwar, P., Butler, G. S., Jamroz, A., Azizi, P., Overall, C. M., & Brömme, D. (2018). Aging-associated modifications of collagen affect its degradation by matrix metalloproteinases. *Matrix Biology*, 65, 30–44. doi:10.1016/j.matbio.2017.06.004

4. Arseni, L., Lombardi, A., & Orioli, D. (2018). From Structure to Phenotype: Impact of Collagen Alterations on Human Health. *International journal of molecular sciences*, 19(5), 1407. <https://doi.org/10.3390/ijms19051407>
5. Bay-Jensen, A. C., Engstroem, A., Sharma, N., & Karsdal, M. A. (2020). Blood and urinary collagen markers in osteoarthritis: markers of tissue turnover and disease activity. *Expert Review of Molecular Diagnostics*, 20(1), 57–68. <https://doi.org/10.1080/14737159.2020.1704257>
6. Bonnans, C., Chou, J., & Werb, Z. (2014). Remodelling the extracellular matrix in development and disease. *Nature reviews Molecular cell biology*, 15(12), 786–801.
7. Al-Atif H. (2022). Collagen Supplements for Aging and Wrinkles: A Paradigm Shift in the Fields of Dermatology and Cosmetics. *Dermatology practical & conceptual*, 12(1), e2022018. <https://doi.org/10.5826/dpc.1201a18>
8. Pu, S. Y., Huang, Y. L., Pu, C. M., Kang, Y. N., Hoang, K. D., Chen, K. H., & Chen, C. (2023). Effects of Oral Collagen for Skin Anti-Aging: A Systematic Review and Meta-Analysis. *Nutrients*, 15(9), 2080. <https://doi.org/10.3390/nu15092080>
9. Khatri, M., Naughton, R. J., Clifford, T., Harper, L. D., & Corr, L. (2021). The effects of collagen peptide supplementation on body composition, collagen synthesis, and recovery from joint injury and exercise: a systematic review. *Amino acids*, 53(10), 1493–1506. <https://doi.org/10.1007/s00726-021-03072-x>
10. Kim, D. U., Chung, H. C., Choi, J., Sakai, Y., & Lee, B. Y. (2018). Oral Intake of Low-Molecular-Weight Collagen Peptide Improves Hydration, Elasticity, and Wrinkling in Human Skin: A Randomized, Double-Blind, Placebo-Controlled Study. *Nutrients*, 10(7), 826. <https://doi.org/10.3390/nu10070826>
11. García-Coronado, J. M., Martínez-Olvera, L., Elizondo-Omaña, R. E., Acosta-Olivo, C. A., Vilchez-Cavazos, F., Simental-Mendía, L. E., & Simental-Mendía, M. (2019). Effect of collagen supplementation on osteoarthritis symptoms: a meta-analysis of randomized placebo-controlled trials. *International orthopaedics*, 43(3), 531–538. <https://doi.org/10.1007/s00264-018-4211-5>
12. Inacio, P. A. Q., Gomes, Y. S. M., de Aguiar, A. J. N., Lopes-Martins, P. S. L., Aimbire, F., Leonardo, P. S., Sá Filho, A. S., & Lopes-Martins, R. A. B. (2024). The Effects of Collagen Peptides as a Dietary Supplement on Muscle Damage Recovery and Fatigue Responses: An Integrative Review. *Nutrients*, 16(19), 3403. <https://doi.org/10.3390/nu16193403>
13. Kalman, D. S., & Hewlings, S. (2020). The effect of oral hydrolyzed eggshell membrane on the appearance of hair, skin, and nails in healthy middle-aged adults: A randomized double-blind placebo-controlled clinical trial. *Journal of cosmetic dermatology*, 19(6), 1463–1472. <https://doi.org/10.1111/jocd.13275>
14. Cánovas, F., Abellán-Ruiz, M. S., García-Muñoz, A. M., Luque-Rubia, A. J., Victoria-Montesinos, D., Pérez-Piñero, S., Sánchez-Macarro, M., & López-Román, F. J. (2022). Randomised Clinical Trial to Analyse the Efficacy of Eggshell Membrane to Improve Joint Functionality in Knee Osteoarthritis. *Nutrients*, 14(11), 2340. <https://doi.org/10.3390/nu14112340>
15. Marcos-Garcés, V., Molina Aguilar, P., Bea Serrano, C., García Bustos, V., Benavent Seguí, J., Ferrández Izquierdo, A., & Ruiz-Saurí, A. (2014). Age-related dermal collagen changes during development, maturation and ageing - a morphometric and comparative study. *Journal of anatomy*, 225(1), 98–108. <https://doi.org/10.1111/joa.12186>
16. Shin, J. W., Kwon, S. H., Choi, J. Y., Na, J. I., Huh, C. H., Choi, H. R., & Park, K. C. (2019). Molecular Mechanisms of Dermal Aging and Antiaging

Approaches. *International journal of molecular sciences*, 20(9), 2126.
<https://doi.org/10.3390/ijms'20092126>

17. Al Hajj, W., Salla, M., Krayem, M., Khaled, S., Hassan, H. F., & El Khatib, S. (2024). Hydrolyzed collagen: Exploring its applications in the food and beverage industries and assessing its impact on human health - A comprehensive review. *Heliyon*, 10(16), e36433. <https://doi.org/10.1016/j.heliyon.2024.e36433>
18. León-López, A., Morales-Peñaloza, A., Martínez-Juárez, V. M., Vargas-Torres, A., Zeugolis, D. I., & Aguirre-Álvarez, G. (2019). Hydrolyzed Collagen-Sources and Applications. *Molecules (Basel, Switzerland)*, 24(22), 4031. <https://doi.org/10.3390/molecules24224031>
19. Hewlings, S., Kalman, D., & Schneider, L. V. (2019). A Randomized, Double-Blind, Placebo-Controlled, Prospective Clinical Trial Evaluating Water-Soluble Chicken Eggshell Membrane for Improvement in Joint Health in Adults with Knee Osteoarthritis. *Journal of medicinal food*, 22(9), 875–884. <https://doi.org/10.1089/jmf.2019.0068>
20. Ruff, K. J., Morrison, D., Duncan, S. A., Back, M., Aydogan, C., & Theodosakis, J. (2018). Beneficial effects of natural eggshell membrane versus placebo in exercise-induced joint pain, stiffness, and cartilage turnover in healthy, postmenopausal women. *Clinical interventions in aging*, 13, 285–295. <https://doi.org/10.2147/CIA.S153782>
21. Ruff, K. J., Winkler, A., Jackson, R. W., DeVore, D. P., & Ritz, B. W. (2009). Eggshell membrane in the treatment of pain and stiffness from osteoarthritis of the knee: a randomized, multicenter, double-blind, placebo-controlled clinical study. *Clinical rheumatology*, 28(8), 907–914. <https://doi.org/10.1007/s10067-009-1173-4>
22. Blasco, J. M. I., Aguirre, A., Gil-Quintana, E., & Fenaux, M. (2016). The effect of daily administration of 300 mg of Ovomet® for treatment of arthritis in elderly patients. *International Journal of Clinical Rheumatology*, 11(5), 77
23. Brunello E, Masini A. NEM® brand eggshell membrane effective in the treatment of pain and stiffness associated with osteoarthritis of the knee in an Italian Study Population. *Int J Clin Med*. 2016;7(1):169–175
24. Damjanov, N., Novkovic, S., Basaric, M., Nikolic, A. K., Vagic, K., & Pejnovic, N. (2019). NEM® Brand Eggshell Membrane in the Treatment of Pain and Stiffness Associated with Knee Osteoarthritis : An Open Label Clinical Study. 8(5).
25. Danesch U, Seybold M, Rittinghausen R, Treibel W, Bitterlich N.(2014) NEM® brand eggshell membrane effective in the treatment of pain associated with knee and hip osteoarthritis: results from a six-center, open-label German Clinical Study. *J Arthritis*. 2014;3(3):136
26. Eskiuyurt, N., Saridoğan, M., Senel, K., Günaydin, R., Erdal, A., Özyiğit, E., ... & Özsoy, T. (2019). Efficacy and Safety of Natural Eggshell Membrane (NEM®) in Patients with Grade 2/3 Knee Osteoarthritis: A Multi-Center, Randomized, Doubleblind, Placebo-Controlled, Single-crossover Clinical Study. *Journal of Arthritis*, 8(4), 1-7.
27. Quintana, E. G., Fenaux, M., Nuez, M. La, Molero, A., & Aguirre, A. (2018). Short-Term Effects of Ovomet®, Eggshell Membrane, in Joint Pain. A Double-Blind and Placebo Study. *Journal of Osteoporosis and Physical Activity*, 06(01), 1–4. <https://doi.org/10.4172/2329-9509.1000211>
28. Aguirre, A., Gil-Quintana, E., Fenaux, M., Erdozain, S., & Sarria, I. (2017). Beneficial Effects of Oral Supplementation with Ovodermin on Human Skin Physiology: Two Pilot Studies. *Journal of Dietary Supplements*, 0211(April), 1–9. <https://doi.org/10.1080/19390211.2017.1310781>

29. Quintana. E.G, La Nuez, M. and Aquirre, A. (2018). Supplementation with Ovoderm® Reduces the Clinical Signs of Skin Aging. A Double-Blind, Placebo-Controlled Study. <https://doi.org/10.15226/2378-1726/5/2/00180>
30. Aguirre, A., Gil-Quintana, E., & Nuez, M. (2018). Ovoderm® an effective treatment to improve skin condition in patients with altered skin barrier function. *J Skin*, 2(1), 11-14.

Catherine Gorman:

<https://pmc.ncbi.nlm.nih.gov/articles/PMC10180699/>

<https://www.ncbi.nlm.nih.gov/books/NBK507709/>

<https://www.researchgate.net/publication/285117930> Collagen peptides improve knee osteoarthritis in elderly women A 6-month randomized double-blind placebo-controlled study

<https://pubmed.ncbi.nlm.nih.gov/33742704/>

Menopause feature:

Keri Briggs:

Aljumah R, Phillips S, Harper JC. An online survey of postmenopausal women to determine their attitudes and knowledge of the menopause. *Post Reproductive Health*. 2023;0(0).

Archer, JSM. Relationship between Estrogen, Serotonin, and Depression. *Menopause* 6(1):p 71-78,

Arena S, Rappa C, Del Frate E, Cenci S, Villani C. Un'alternativa naturale alla terapia ormonale sostitutiva in menopausa.. I fitoestrogeni [A natural alternative to menopausal hormone replacement therapy. Phytoestrogens]. *Minerva Ginecol*. 2002 Feb;54(1):53-7.

Boespflug E. L., McNamara R. K., Eliassen J. C., Schidler M. D., Krikorian R. Fish oil supplementation increases event-related posterior cingulate activation in older adults with subjective memory impairment. *The Journal of Nutrition, Health & Aging*. 2016;20(2):161–169.

Bommer S, Klein P, Suter A. First time proof of sage's tolerability and efficacy in menopausal women with hot flushes. *Adv Ther*. 2011 Jun;28(6):490-500.

Borud EK, Alraek T, White A, et al. The Acupuncture on Hot Flushes Among Menopausal Women (ACUFLASH) study, a randomized controlled trial. *Menopause*. 2009;16:484–493.

Brzezinski A, Debi A. Phytoestrogens: the “natural” selective estrogen receptor modulators? *Eur. J. Obstet. Gynecol. Reprod. Biol*. 85, 47–51 (1999).

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

Cano A, Marshall S, Zolfaroli I, Bitzer J, Ceausu I, Chedraui P, Durmusoglu F, Erkkola R, Goulis DG, Hirschberg AL, Kiesel L, Lopes P, Pines A, van Trotsenburg M, Lambrinoudaki I, Rees M. The Mediterranean diet and menopausal health: An EMAS position statement. *Maturitas*. 2020 Sep;139:90-97.

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.

Casper RF, Yen SS. Neuroendocrinology of menopausal flushes: a hypothesis of flush mechanism. *Clin Endocrinol (Oxf)* 1985; 22: 293–312.

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

Ceylan B, Özerdoğan N. Factors affecting age of onset of menopause and determination of quality of life in menopause. *Turk J Obstet Gynecol*. 2015 Mar;12(1):43–49.

Chang CY, Ke DS, Chen JY. Essential fatty acids and human brain. *Acta Neurol Taiwan*. 2009 Dec;18(4):231–41. PMID: 20329590

Chien LW, Cheng SL, Liu CF. The effect of lavender aromatherapy on autonomic nervous system in midlife women with insomnia. *Evid Based Complement Alternat Med*. 2012;2012:740813
<https://www.cipd.org/uk/about/press-releases/menopause-at-work/>

Conklin S. M., Gianaros P. J., Brown S. M., et al. Long-chain omega-3 fatty acid intake is associated positively with corticolimbic gray matter volume in healthy adults. *Neuroscience Letters*. 2007;421(3):209–212.

Decandia D, Landolfo E, Sacchetti S, Gelfo F, Petrosini L, Cutuli D. n-3 PUFA Improve Emotion and Cognition during Menopause: A Systematic Review. *Nutrients*. 2022 May 9;14(9):1982.

Dyall SC. Long-chain omega-3 fatty acids and the brain: a review of the independent and shared effects of EPA, DPA and DHA. *Front Aging Neurosci*. 2015;7:52. 2015; Apr 21

Elkins G, Marcus J, Stearns V, et al. Randomized trial of a hypnosis intervention for treatment of hot flashes among breast cancer survivors. *J Clin Oncol*. 2008;26:5022–5026.

Elkins GE, Fisher WI, Johnson AK, Carpenter JS, Keith TZ. Clinical hypnosis in the treatment of post-menopausal hot flashes: a randomized controlled trial. *Menopause*. 2013;20:291–298.

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

Feduniw S, Korczyńska L, Górski K, Zgliczyńska M, Bączkowska M, Byrczak M, Kociuba J, Ali M, Ciebiera M. The Effect of Vitamin E Supplementation in Postmenopausal Women-A Systematic Review. *Nutrients*. 2022 Dec 29;15(1):160.

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.

Fisher WI, Johnson AK, Elkins GE, et al. Risk factors, pathophysiology, and treatment of hot flashes in cancer. *CA Cancer J Clin*. 2013;63:167–192.

Folman Y, Pope GS. The interaction in the immature mouse of potent oestrogens with coumestrol, genistein and other utero-vaginitrophic compounds of low potency. *J. Endocrinol*. 34, 215–225 (1966).

Freedman RR, Norton D, Woodward S, Cornelissen G. Core body temperature and circadian rhythm of hot flashes in menopausal women. *J Clin Endocrinol Metab* 1995; 80: 2354–58.

Freedman RR, Krell W. Reduced thermoregulatory null zone in postmenopausal women with hot flashes. *Am J Obstet Gynecol* 1999; 181: 66–70.

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,

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.

Gold EB, Crawford SL, Avis NE, et al. (2013) Factors related to age at natural menopause: longitudinal analyses from SWAN. *Am J Epidemiol* doi:10.1093/aje/kws421.

Golmakani N, Parnan Emamverdikhani A, Zarifian A, Sajadi Tabassi SA, Hassanzadeh M. Vitamin E as alternative local treatment in genitourinary syndrome of menopause: a randomized controlled trial. *Int Urogynecol J*. 2019;30:831–837.

Gozuyesil E, Baser M. The effect of foot reflexology applied to women aged between 40 and 60 on vasomotor complaints and quality of life. *Complement Ther Clin Pract*. 2016;24:78–85

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.

Hak AE, Polderman KH, Westendorp IC, Jakobs C, Hofman A, Witteman JC, Stehouwer CD. Increased plasma homocysteine after menopause. *Atherosclerosis*. 2000 Mar;149(1):163-8.

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.

Herber-Gast. G-CM, Mishra. GD. Fruit, Mediterranean-style, and high-fat and -sugar diets are associated with the risk of night sweats and hot flashes in midlife: results from a prospective cohort study, *The American Journal of Clinical Nutrition*, Volume 97, Issue 5, May 2013, Pages 1092–1099,

Hogervorst E, Craig J, O'Donnell E. Cognition and mental health in menopause: A review. *Best Pract Res Clin Obstet Gynaecol*. 2022 May;81:69-84.

Imanshahidi M, Hosseinzadeh H (2006) The pharmacological effects of salvia species on the central nervous system. *Phytother Res* 20:427–437

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.

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

Johnson AK, Johnson AJ, Barton D, Elkins GE. Hypnotic relaxation therapy and sexual function in postmenopausal women: results of a randomized controlled clinical trial. *Int J Clin Exp Hypn*. 2016;64:213–224.

Johnson A, Roberts L, Elkins G. Complementary and Alternative Medicine for Menopause. *J Evid Based Integr Med*. 2019 Jan-Dec;24:

Kazemzadeh R, Nikjou R, Rostamnagad M, Norouzi H. Effect of lavender aromatherapy on menopause hot flushing: a crossover randomized clinical trial. *J Chin Med Assoc*. 2016;79:489–492.

Khallouki F., de Medina P., Caze-Subra S., Bystricky K., Balaguer P., Poirot M., Silvente-Poirot S. Molecular and Biochemical Analysis of the Estrogenic and Proliferative Properties of Vitamin E Compounds. *Front. Oncol*. 2015;5:287.

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.

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.

Larmo PS, Yang B, Hyssälä J, Kallio HP, Erkkola R. Effects of sea buckthorn oil intake on vaginal atrophy in postmenopausal women: a randomized, double-blind, placebo-controlled study. *Maturitas*. 2014 Nov;79(3):316-21.

Lewis JE, Hilditch JR, Wong CJ. Further psychometric property development of the Menopause-Specific Quality of Life questionnaire and development of a modified version, MENQOL-Intervention questionnaire. *Maturitas*. 2005;50:209–221.

Lucas M., Asselin G., Mérette C., Poulin M.J., Dodin S. Ethyl-eicosapentaenoic acid for the treatment of psychological distress and depressive symptoms in middle-aged women: A double-blind; placebo-controlled; randomized clinical trial. *Am. J. Clin. Nutr.* 2009;89:641–651.

Margetts G, Kleidonas S, Zaibi NS, Zaibi MS, Edwards KD. Evidence for anti-inflammatory effects and modulation of neurotransmitter metabolism by *Salvia officinalis* L. *BMC Complement Med Ther*. 2022 May 12;22(1):131.

Masoumi S.Z., Kazemi F., Tavakolian S., Rahimi A., Oshvandi K., Soltanian A., Shobeiri F. Effect of citalopram in combination with omega-3 on depression in postmenopausal women: A triple blind randomized controlled trial. *J. Clin. Diagn. Res.* 2016;10:QC01.

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.

Messina M. Soybean isoflavones warrant greater consideration as a treatment for the alleviation of menopausal hot flashes. *Womens Health (Lond)*. 2014 Nov;10(6):549-53.

Nelson HD. Menopause. *Lancet*. 2008 Mar 1;371(9614):760-70.

NHS, [Menopause - Symptoms - NHS \(www.nhs.uk\)](https://www.nhs.uk), accessed on 3 July 2022

Nuffield Health Survey One. Four with menopause symptoms concerned about ability to cope with life. 2014 <https://www.nuffieldhealth.com/article/one-in-four-with-menopause-symptoms-concerned-about-ability-to-cope-with-life#about>

Paramsothy P, Harlow SD, Nan B, et al. (2017) Duration of the menopausal transition is longer in women with young age at onset: the multiethnic study of women's health across the nation. *Menopause* 24, 2, 142–149.

Richard-Davis G, Wellons M (2013) Racial and ethnic differences in the physiology and clinical symptoms of menopause. *Semin Reprod Med* doi:10.1055/s-0033-1348897.

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.

Smith AD, Smith SM, de Jager CA, Whitbread P, Johnston C, Agacinski G, Oulhaj A, Bradley KM, Jacoby R, Refsum H. Homocysteine-lowering by B vitamins slows the rate of accelerated brain atrophy in mild cognitive impairment: a randomized controlled trial. *PLoS One*. 2010 Sep 8;5(9):e12244.

Smith AD, Refsum H. Homocysteine, B Vitamins, and Cognitive Impairment. *Annu Rev Nutr*. 2016 Jul 17;36:211-39.

Spinneker A, Sola R, Lemmen V, Castillo MJ, Pietrzik K, González-Gross M. Vitamin B6 status, deficiency and its consequences--an overview. *Nutr Hosp*. 2007 Jan-Feb;22(1):7-24.

Strike S.C., Carlisle A., Gibson E.L., Dyal S.C. A high omega-3 fatty acid multivitamin supplement benefits cognition and mobility in older women: A randomized; double-blind; placebo-controlled pilot study. *J. Gerontol. A Biol. Sci. Med. Sci*. 2016;71:236–242.

Sussman M, Trocio J, Best C, Mirkin S, Bushmakin AG, Yood R, Friedman M, Menzin J, Louie M. Prevalence of menopausal symptoms among mid-life women: findings from electronic medical records. *BMC Womens Health*. 2015 Aug 13;15:58.

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.

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.

Takahashi TA, Johnson KM. Menopause. *Med Clin North Am*. 2015 May;99(3):521-34.

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.

Zhao D, Lv G, Zhang Y, et al. (2021) Identifying the different subtypes in menopausal symptoms among middle-aged women in China: a latent class analysis. *Menopause* 28, 12, 1418–1427.

Ziaei S., Kazemnejad A., Zareai M. The effect of vitamin E on hot flashes in menopausal women. *Gynecol. Obstet. Investig.* 2007;64:204–207.

Zou P, Shao J, Luo Y, et al. (2020) Menopausal transition experiences and management strategies of Chinese immigrant women: a scoping review. *Menopause* 27, 12, 1434–1443.

Sophie Barrett:

1. Cortonesi, P. Mc., et al. Use of *Hericium erinaceus* as a potential therapeutic of mental disorders: a systematic review. *Debates em Psiquiatria*, 2023, vol. 13, p. 1-13.
2. Chong, P. S., et al. Therapeutic potential of *Hericium erinaceus* for depressive disorder.
3. International journal of molecular sciences, 2020, vol. 21, no 1, p. 163. Reduction of depression and anxiety by 4 weeks *Hericium erinaceus* intake.
4. Li, K., et al. The anti-fatigue and sleep-aiding effects vary significantly among different recipes containing *Ganoderma lucidum* extracts. *Heliyon*, 2024.
5. Li, H., et al. *Ganoderma lucidum* polysaccharides ameliorated depression-like behaviors in the chronic social defeat stress depression model via modulation of Dectin-1 and the innate immune system. *Brain Research Bulletin*, 2021, vol. 171, p. 16-24.
6. Speers, A. B., et al. Effects of *Withania somnifera* (Ashwagandha) on stress and the stress-related neuropsychiatric disorders anxiety, depression, and insomnia. *Current neuropharmacology*, 2021, vol. 19, no 9, p. 1468
7. Dongre, S., et al. Efficacy and safety of Ashwagandha (*Withania somnifera*) root extract in improving sexual function in women: a pilot study. *BioMed research international*, 2015, vol. 2015
8. Gopal, S., et al. Effect of an ashwagandha (*Withania Somnifera*) root extract on climacteric symptoms in women during perimenopause: A randomized,

- double-blind, placebo-controlled study. J Obstet Gynaecol. Res, 2021; 47(12), 4414-4425.
9. Li, Z., et al. Cordycepin promotes osteogenesis of bone marrow-derived mesenchymal stem cells and accelerates fracture healing via hypoxia in a rat model of closed femur fracture. Biomedicine & Pharmacotherapy, 2020;125, p.109991.
 10. Dewi, L., et al. *Cordyceps sinensis* accelerates stem cell recruitment to human skeletal muscle after exercise. Food & Function, 2024;15(8), pp.4010-4020
 11. Yang, S. Y., et al. *Hericium erinaceus mycelium* ameliorates in vivo progression of osteoarthritis. Nutrients, 2022;14(13), p.2605.
 12. Yang, Y., et al. *Ganoderma lucidum* immune modulator protein rLZ-8 could prevent and reverse bone loss in glucocorticoids-induced osteoporosis rat model. Frontiers in Pharmacology, 2020; 11, p.731.

Ingredient spotlight:

1. Sharma, P. et al. (2018). *Molecular docking studies of Shatavari phytoconstituents*. J Ethnopharmacol.
 2. Panda, S. et al. (2015). *Effect of Shatavari on menopausal symptoms and hormones: A clinical study*. Ayu.
 3. Kulkarni, R.R. et al. (2022). *Shatavari supplementation improves muscle strength in postmenopausal women: A RCT*. J Ayurveda Integr Med.
- Pandey, R. et al. (2020). *Phytoestrogenic profile of Shatavari and implications on female health*. Phytomedicine.

Ask the experts:

Julie Weston:

- Gonçalves, Ana C., et al. "Dietary Effects of Anthocyanins in Human Health: A Comprehensive Review." *Pharmaceuticals*, vol. 14, no. 7, 18 July 2021, p. 690, <https://doi.org/10.3390/ph14070690>.
- Tan, Jijun, et al. "The Effects and Mechanisms of Cyanidin-3-Glucoside and Its Phenolic Metabolites in Maintaining Intestinal Integrity." *Antioxidants*, vol. 8, no. 10, 12 Oct. 2019, p. 479, <https://doi.org/10.3390/antiox8100479>.
- Golba, Marta, et al. "Health Properties and Composition of Honeysuckle Berry *Lonicera Caerulea* L. An Update on Recent Studies." *Molecules*, vol. 25, no. 3, 1 Jan. 2020, p. 749, [www.mdpi.com/1420-3049/25/3/749](https://doi.org/10.3390/molecules25030749), <https://doi.org/10.3390/molecules25030749>.
- Rupasinghe, H.P. Vasantha, et al. "The Potential Health Benefits of Haskap (*Lonicera Caerulea* L.): Role of Cyanidin-3- O -Glucoside." *Journal of Functional Foods*, vol. 44, May 2018, pp. 24–39, <https://doi.org/10.1016/j.jff.2018.02.023>

Alison Cullen:

¹ Frosh, A. et al. Effect of a dairy diet on nasopharyngeal mucus secretion. The Laryngoscope 2019; 129: 13-17.

Patangia DV et al. Impact of antibiotics on the human microbiome and consequences for host health. Microbiologyopen. 2022; 11 (1): e1260.