

Postbiotics: the hidden key to a healthy gut lining

Reference list accompanying the Postbiotics page on postbiota.com and the underlying article.

References

1. Siddiqui, M.T., and Cresci, G.A.M. (2021). The Immunomodulatory Functions of Butyrate. *J Inflamm Res* 14, 6025–6041. <https://doi.org/10.2147/JIR.S300989>
2. Mann, E.R., Lam, Y.K., and Uhlig, H.H. (2024). Short-chain fatty acids: linking diet, the microbiome and immunity. *Nature Reviews Immunology* 24, 577–595. <https://doi.org/10.1038/s41577-024-01014-8>
3. Du, Y., He, C., An, Y., Huang, Y., Zhang, H., Fu, W., Wang, M., Shan, Z., Xie, J., Yang, Y., et al. (2024). The Role of Short Chain Fatty Acids in Inflammation and Body Health. *International Journal of Molecular Sciences* 25, 7379. <https://doi.org/10.3390/IJMS25137379>
4. Lee, K., Kim, H.J., Kim, S.A., Park, S.-D., Shim, J.-J., and Lee, J.-L. (2021). Exopolysaccharide from *Lactobacillus plantarum* HY7714 Protects against Skin Aging through Skin-Gut Axis Communication. *Molecules* 26, 1651. <https://doi.org/10.3390/MOLECULES26061651>
5. De Almeida, C.V., Antiga, E., and Lulli, M. (2023). Oral and Topical Probiotics and Postbiotics in Skincare and Dermatological Therapy: A Concise Review. *Microorganisms* 11, 1420. <https://doi.org/10.3390/MICROORGANISMS11061420>
6. Duarte, M., Carvalho, M.J., de Carvalho, N.M., Azevedo-Silva, J., Mendes, A., Ribeiro, I.P., Fernandes, J.C., Oliveira, A.L.S., Oliveira, C., Pintado, M., et al. (2023). Skincare potential of a sustainable postbiotic extract produced through sugarcane straw fermentation by *Saccharomyces cerevisiae*. *BioFactors* 49, 1038–1060. <https://doi.org/10.1002/BIOF.1975>
7. Ruan, D., Hu, T., Yang, X., Mo, X., and Ju, Q. (2025). Lactate in skin homeostasis: metabolism, skin barrier, and immunomodulation. *Front Immunol* 16, 1510559. <https://doi.org/10.3389/FIMMU.2025.1510559>
8. Guéniche, A., Bastien, P., Ovigne, J.M., Kermici, M., Courchay, G., Chevalier, V., Breton, L., and Castiel-Higounenc, I. (2010). *Bifidobacterium longum* lysate, a new ingredient for reactive skin. *Exp Dermatol* 19, e1–e8. <https://doi.org/10.1111/J.1600-0625.2009.00932.X>
9. Xiao, X., Hu, X., Yao, J., Cao, W., Zou, Z., Wang, L., Qin, H., Zhong, D., Li, Y., Xue, P., et al. (2023). The role of short-chain fatty acids in inflammatory skin diseases. *Front Microbiol* 13, 1083432. <https://doi.org/10.3389/FMICB.2022.1083432>
10. Schönfeld, P., and Wojtczak, L. (2016). Short- and medium-chain fatty acids in energy metabolism: the cellular perspective. *J Lipid Res* 57, 943–954. <https://doi.org/10.1194/JLR.R067629>
11. Hu, J., Lin, S., Zheng, B., and Cheung, P.C.K. (2018). Short-chain fatty acids in control of energy metabolism. *Crit Rev Food Sci Nutr* 58, 1243–1249. <https://doi.org/10.1080/10408398.2016.1245650>

12. He, J., Zhang, P., Shen, L., Niu, L., Tan, Y., Chen, L., Zhao, Y., Bai, L., Hao, X., Li, X., et al. (2020). Short-Chain Fatty Acids and Their Association with Signalling Pathways in Inflammation, Glucose and Lipid Metabolism. *Int J Mol Sci* 21, 1–16. <https://doi.org/10.3390/IJMS21176356>
13. Carey, R.A., and Montag, D. (2021). Exploring the relationship between gut microbiota and exercise: short-chain fatty acids and their role in metabolism. *BMJ Open Sport Exerc Med* 7, 930. <https://doi.org/10.1136/BMJSEM-2020-000930>
14. Canfora, E.E., Van Der Beek, C.M., Jocken, J.W.E., Goossens, G.H., Holst, J.J., Olde Damink, S.W.M., Lenaerts, K., Dejong, C.H.C., and Blaak, E.E. (2017). Colonic infusions of short-chain fatty acid mixtures promote energy metabolism in overweight/obese men: a randomized crossover trial. *Scientific Reports* 7, 1–12. <https://doi.org/10.1038/s41598-017-02546-x>
15. LeBlanc, J.G., Chain, F., Martín, R., Bermúdez-Humarán, L.G., Courau, S., and Langella, P. (2017). Beneficial effects on host energy metabolism of short-chain fatty acids and vitamins produced by commensal and probiotic bacteria. *Microb Cell Fact* 16, 1–10. <https://doi.org/10.1186/S12934-017-0691-Z>
16. Meijer, K., De Vos, P., and Priebe, M.G. (2010). Butyrate and other short-chain fatty acids as modulators of immunity: What relevance for health? *Curr Opin Clin Nutr Metab Care* 13, 715–721. <https://doi.org/10.1097/MCO.0B013E32833EEBE5>
17. Schwarz, A., Bruhs, A., and Schwarz, T. (2017). The Short-Chain Fatty Acid Sodium Butyrate Functions as a Regulator of the Skin Immune System. *Journal of Investigative Dermatology* 137, 855–864. <https://doi.org/10.1016/j.jid.2016.11.014>
18. Bach Knudsen, K.E. (2015). Microbial Degradation of Whole-Grain Complex Carbohydrates and Impact on Short-Chain Fatty Acids and Health. *Advances in Nutrition* 6, 206–213. <https://doi.org/10.3945/AN.114.007450>
19. Li, J., Zhao, J., Tian, C., Dong, L., Kang, Z., Wang, J., Zhao, S., Li, M., and Tong, X. (2024). Mechanisms of regulation of glycolipid metabolism by natural compounds in plants: effects on short-chain fatty acids. *Nutrition & Metabolism* 21, 1–15. <https://doi.org/10.1186/S12986-024-00829-5>
20. Proctor, C., Thiennimitr, P., Chattipakorn, N., and Chattipakorn, S.C. (2016). Diet, gut microbiota and cognition. *Metabolic Brain Disease* 32, 1–17. <https://doi.org/10.1007/S11011-016-9917-8>
21. Malesza, I.J., Malesza, M., Walkowiak, J., Mussin, N., Walkowiak, D., Aringazina, R., Bartkowiak-Wieczorek, J., and Mądry, E. (2021). High-Fat, Western-Style Diet, Systemic Inflammation, and Gut Microbiota: A Narrative Review. *Cells* 10, 3164. <https://doi.org/10.3390/CELLS10113164>
22. Yap, Y.A., McLeod, K.H., McKenzie, C.I., Gavin, P.G., Davalos-Salas, M., Richards, J.L., Moore, R.J., Lockett, T.J., Clarke, J.M., et al. (2021). An acetate-yielding diet imprints an immune and anti-microbial programme against enteric infection. *Clin Transl Immunology* 10, e1233. <https://doi.org/10.1002/cti2.1233>
23. Mailing, L.J., Allen, J.M., Buford, T.W., Fields, C.J., and Woods, J.A. (2019). Exercise and the Gut Microbiome: A Review of the Evidence, Potential Mechanisms, and Implications for Human Health. *Exerc Sport Sci Rev* 47, 75–85. <https://doi.org/10.1249/JES.0000000000000183>
24. Xu, H., Ortiz Álvarez, L., Martínez-Téllez, B., and Ruiz Ruiz, J. (2020). Exercise and human gut microbiota: a systemic review. *Proceedings of the Nutrition Society*, 641. <https://doi.org/10.1017/S002966512000590X>
25. Monda, V., Villano, I., Messina, A., Valenzano, A., Esposito, T., Moscatelli, F., Viggiano, A., Cibelli, G., Chieffi, S., Monda, M., et al. (2017). Exercise Modifies the Gut Microbiota with Positive Health Effects. *Oxid Med Cell Longev* 2017, 3831972. <https://doi.org/10.1155/2017/3831972>
26. Allen, J.M., Mailing, L.J., Niemiro, G.M., Moore, R., Cook, M.D., White, B.A., Holscher, H.D., and Woods, J.A. (2018). Exercise Alters Gut Microbiota Composition and Function in Lean and Obese Humans. *Med Sci Sports Exerc* 50, 747–757. <https://doi.org/10.1249/MSS.0000000000001495>
27. Grosicki, G.J., Riemann, B.L., Flatt, A.A., Valentino, T., and Lustgarten, M.S. (2020). Self-reported sleep quality is associated with gut microbiome composition in young, healthy individuals: a pilot study. *Sleep Med* 73, 76–81. <https://doi.org/10.1016/J.SLEEP.2020.04.013>

28. Wang, Z., Chen, W.H., Li, S.X., He, Z.M., Zhu, W.L., Ji, Y.B., Wang, Z., Zhu, X.M., Yuan, K., Bao, Y.P., et al. (2021). Gut microbiota modulates the inflammatory response and cognitive impairment induced by sleep deprivation. *Molecular Psychiatry* 26, 6277–6292. <https://doi.org/10.1038/s41380-021-01113-1>
29. Wu, M., Tian, T., Mao, Q., Zou, T., Zhou, C.J., Xie, J., and Chen, J.J. (2020). Associations between disordered gut microbiota and changes of neurotransmitters and short-chain fatty acids in depressed mice. *Transl Psychiatry* 10, 1–10. <https://doi.org/10.1038/S41398-020-01038-3>
30. Jasbi, P., Mohr, A.E., Shi, X., Mahmood, T., Zhu, Q., Bruening, M., Gu, H., and Whisner, C. (2022). Microbiome and metabolome profiles of high screen time in a cohort of healthy college students. *Sci Rep* 12, 1–17. <https://doi.org/10.1038/S41598-022-07381-3>
31. Rio, P., Gasbarrini, A., Gambassi, G., and Ciani, R. (2024). Pollutants, microbiota and immune system: frenemies within the gut. *Front Public Health* 12, 1285186. <https://doi.org/10.3389/FPUH.2024.1285186>
32. Bailey, M.J., Naik, N.N., Wild, L.E., Patterson, W.B., and Alderete, T.L. (2020). Exposure to air pollutants and the gut microbiota: a potential link between exposure, obesity, and type 2 diabetes. *Gut Microbes* 11, 1188. <https://doi.org/10.1080/19490976.2020.1749754>

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