Research Roundup – March 2025

New this month in therapeutic carbohydrate reduction and metabolic health.

Curated by Sarah Rice BSc. (Hons), MCOptom (UK), MHP, NNP

Metabolic Studies

1. Biyikoglu, H., Robertson, M.D. and Collins, A.L. (2025) 'Isolating the acute metabolic effects of carbohydrate restriction on postprandial metabolism with or without energy restriction: a crossover study', *European Journal of Nutrition*, 64(3), p. 133. Available at: https://doi.org/10.1007/s00394-025-03646-5.
2. Colonetti, L. *et al.* (2025) 'Effects of carbohydrate reduced diet associated with strength training on clinical signs of women with polycystic ovary syndrome: Randomized clinical trial', *Nutrition (Burbank, Los Angeles County, Calif.)*, 133, p. 112696. Available at: https://doi.org/10.1016/j.nut.2025.112696.
3. Crabtree, C.D. *et al.* (2025) 'A ketogenic-promoting beverage acutely elevates cardiac function and myocardial blood flow compared to placebo in adults: A cardiac MRI investigation', *Physiological Reports*, 13(6), p. e70208. Available at: https://doi.org/10.14814/phy2.70208.
4. Harbi, N.S., AL-Qaisi, A.H.J. and Hairunisa, N. (2025) 'Evaluating the Effect of the Ketogenic Diet on the Reproductive and Metabolic Parameters in Iraqi Females with Polycystic Ovary Syndrome', *Al-Nahrain Journal of Science*, 28(1), pp. 8–13. Available at: https://anjs.edu.iq/index.php/anjs/article/view/2746 (Accessed: 19 March 2025).
5. Izquierdo, A.G. *et al.* (2025) 'Epigenetic Aging Acceleration in Obesity Is Slowed Down by Nutritional Ketosis Following Very Low-Calorie Ketogenic Diet (VLCKD): A New Perspective to Reverse Biological Age', *Nutrients*, 17(6), p. 1060. Available at: https://doi.org/10.3390/nu17061060.
6. Kolivas, D. *et al.* (2025) 'A 6-Month mHealth Low-Carbohydrate Dietary Intervention Ameliorates Glycaemic and Cardiometabolic Risk Profile in People with Type 2 Diabetes', *Nutrients*, 17(6), p. 937. Available at: https://doi.org/10.3390/nu17060937.
7. Łagowska, K. *et al.* (2025) 'Effects of a ketogenic diet on the anthropometric, metabolic, and hormonal parameters in women with polycystic ovary syndrome: A systematic review of randomised controlled trials', *Acta*

Scientiarum Polonorum Technologia Alimentaria, 24(3). Available at: https://doi.org/10.17306/J.AFS.001327.
8. Mano, Y. and Fukuda, N. (2025) 'Effect of ketosis induced by on delayed-onset muscle soreness, inflammation and redox status: a randomized, open-label, crossover pilot study', *The Journal of Sports Medicine and Physical Fitness*, 65(4). Available at: https://doi.org/10.23736/S0022-4707.24.16137-3.
9. McClure, T.S. *et al.* (2025) 'Multisystem impact of altering acid load of ingested exogenous ketone supplements at rest in young healthy adults', *American Journal of Physiology. Regulatory, Integrative and Comparative Physiology*, 328(3), pp. R386–R395. Available at: https://doi.org/10.1152/ajpregu.00057.2024.
10. Sousa, S.S. de S., Nery, E.S. and Giuffrida, F.M.A. (2025) 'Low-carbohydrate diet in type 1 diabetes: a systematic review', *Clinical Nutrition ESPEN*, 0(0). Available at: https://doi.org/10.1016/j.clnesp.2025.03.009.

General reviews

1. Bachar, A. and Birk, R. (2025) 'Ketogenic Diet Intervention for Obesity Weight-Loss- A Narrative Review, Challenges, and Open Questions', *Current Nutrition Reports*, 14(1), p. 43. Available at: https://doi.org/10.1007/s13668-025-00634-3.
2. Dyńka, D. *et al.* (2025) 'Ketogenic Diets for Body Weight Loss: A Comparison with Other Diets', *Nutrients*, 17(6), p. 965. Available at: https://doi.org/10.3390/nu17060965.
3. Kodur, N., Nguyen, C. and Tang, W.H.W. (2025) 'Therapeutic Ketosis for Heart Failure: A State-of-the-Art-Review', *Journal of Cardiac Failure*, 0(0). Available at: https://doi.org/10.1016/j.cardfail.2025.01.028.
4. Li, J. *et al.* (2025) 'Ketogenic diets and β-hydroxybutyrate in the prevention and treatment of diabetic kidney disease: current progress and future perspectives', *BMC Nephrology*, 26(1), p. 127. Available at: https://doi.org/10.1186/s12882-025-04019-0. (side effects mentioned may not be generalisable due to a focus on studies citing challenges in pediatric populations with epilepsy)
5. Skartun, O. *et al.* (2025) 'Symptoms during initiation of a ketogenic diet: a scoping review of occurrence rates, mechanisms and relief strategies', *Frontiers in Nutrition*, 12. Available at: https://doi.org/10.3389/fnut.2025.1538266.
6. Teicholz, N. *et al.* (2025) 'Myths and Facts Regarding Low-Carbohydrate Diets', *Nutrients*, 17(6), p. 1047. Available at: https://doi.org/10.3390/nu17061047.

Neurology

1. Antal, B.B. *et al.* (2025) 'Brain aging shows nonlinear transitions, suggesting a midlife "critical window" for metabolic intervention', *Proceedings of the National Academy of Sciences*, 122(10), p. e2416433122. Available at: https://doi.org/10.1073/pnas.2416433122.
2. Graybeal, A.J. *et al.* (2025) 'Effects of Ketone Ester Supplementation on Cognition and Appetite in Individuals with and Without Metabolic syndrome: A Randomized Trial', *Journal of Dietary Supplements*, pp. 1–19. Available at: https://doi.org/10.1080/19390211.2025.2473371.

Cancer

1. AlMutairi, H. *et al.* (2025) 'Safety, Feasibility, and Effectiveness of Ketogenic Diet in Pediatric Patients With Brain Tumors: A Systematic Review', *Journal of Nutrition and Metabolism*. Edited by E. Gumpricht, 2025(1), p. 7935879. Available at: https://doi.org/10.1155/jnme/7935879.
2. Kiryttopoulos, A. *et al.* (2025) 'Successful application of dietary ketogenic metabolic therapy in patients with glioblastoma: a clinical study', *Frontiers in Nutrition*, 11, p. 1489812. Available at: https://doi.org/10.3389/fnut.2024.1489812.
3. Klement, R.J., Sweeney, R.A. and Champ, C.E. (2025) '"Plant-based and ketogenic diets as diverging paths to address cancer": a commentary concerning the supposed superiority of a plant-based diet', *Oncologie* [Preprint]. Available at: https://doi.org/10.1515/oncologie-2025-0033.

Metabolic Psychiatry

1. Gumusoglu, S.B. *et al.* (2025) 'Disrupted fetal carbohydrate metabolism in children with autism spectrum disorder', *Journal of Neurodevelopmental Disorders*, 17(1), p. 16. Available at: https://doi.org/10.1186/s11689-025-09601-z.
2. Jade Shelp, C.C. (2025) 'Perspectives on the Ketogenic Diet as a Non-pharmacological Intervention For Major Depressive Disorder', *Perspectives on the Ketogenic Diet as a Non-pharmacological Intervention For Major Depressive Disorder*, 0(AheadOfPrint), pp. 0–0. Available at: https://doi.org/10.47626/2237-6089-2024-0932. PDF
3. Ruskin, D.N., Martinez, L.A. and Masino, S.A. (2025) 'Ketogenic diet, adenosine, and dopamine in addiction and psychiatry', *Frontiers in Nutrition*, 12. Available at: https://doi.org/10.3389/fnut.2025.1492306.