Roundup - April 2023

New this month in therapeutic carbohydrate restriction and metabolic health.

Metabolic (TCR intervention)

1. Barrea, L., Verde, L., Camajani, E., Šojat, A.S., Marina, L., Savastano, S., Colao, A., Caprio, M. and Muscogiuri, G. (2023) 'Effects of very low-calorie ketogenic diet on hypothalamic–pituitary–adrenal axis and renin–angiotensin–aldosterone system', *Journal of Endocrinological Investigation* [Preprint]. Available at: https://doi.org/10.1007/s40618-023-02068-6.
2. Dilmore, A.H., Martino, C., Neth, B.J., West, K.A., Zemlin, J., Rahman, G., Panitchpakdi, M., Meehan, M.J., Weldon, K.C., Blach, C., Schimmel, L., Kaddurah-Daouk, R., Dorrestein, P.C., Knight, R., Craft, S. and Consortium, A.G.M.P. (no date) 'Effects of a ketogenic and low-fat diet on the human metabolome, microbiome, and foodome in adults at risk for Alzheimer's disease', *Alzheimer's & Dementia*, n/a(n/a). Available at: https://doi.org/10.1002/alz.13007.
3. García-Gómez, E., Gómez-Viais, Y.I., Cruz-Aranda, M.M., Martínez-Razo, L.D., Reyes-Mayoral, C., Ibarra-González, L., Montoya-Estrada, A., Osorio-Caballero, M., Perichart-Perera, O., Camacho-Arroyo, I., Cerbón, M., Reyes-Muñoz, E. and Vázquez-Martínez, E.R. (2023) 'The Effect of Metformin and Carbohydrate-Controlled Diet on DNA Methylation and Gene Expression in the Endometrium of Women with Polycystic Ovary Syndrome', *International Journal of Molecular Sciences*, 24(7), p. 6857. Available at: https://doi.org/10.3390/ijms24076857.
4. Harray, A.J., Roberts, A.G., Crosby, N.E., Shoneye, C. and Bebbington, K. (2023) 'Experiences and Attitudes of Parents Reducing Carbohydrate Intake in the Management of Their Child's Type 1 Diabetes: A Qualitative Study', *Nutrients*, 15(7), p. 1666. Available at: https://doi.org/10.3390/nu15071666.
5. Lopaschuk, G.D. and Dyck, J.R.B. (2023) 'Ketones and the cardiovascular system', *Nature Cardiovascular Research*, pp. 1–13. Available at: https://doi.org/10.1038/s44161-023-00259-1.

Metabolic Syndrome and Insulin Resistance

1. Gruber, J., Hanssen, R., Qubad, M., Bouzouina, A., Schack, V., Sochor, H., Schiweck, C., Aichholzer, M., Matura, S., Slattery, D.A., Zopf, Y., Borgland, S.L., Reif, A. and Thanarajah, S.E. (2023) 'Impact of insulin and insulin resistance on brain dopamine signalling and reward processing – An underexplored mechanism in the pathophysiology of depression?', *Neuroscience & Biobehavioral Reviews*, 149, p. 105179. Available at: https://doi.org/10.1016/j.neubiorev.2023.105179.
2. Gundogdu, U., Gurer, G. and Eroglu, M. (2023) 'Executive function, behavioral problems, and insulin resistance in adolescents with obesity', *Journal of Pediatric Endocrinology and Metabolism* [Preprint]. Available at: https://doi.org/10.1515/jpem-2022-0510. ABSTRACT
3. Màrmol, J.M., Carlsson, M., Raun, S.H., Grand, M.K., Sørensen, J., Lang Lehrskov, L., Richter, E.A., Norgaard, O. and Sylow, L. (2023) 'Insulin resistance in patients with cancer: a systematic review

and meta-analysis', *Acta Oncologica*, 0(0), pp. 1–8. Available at: https://doi.org/10.1080/0284186X.2023.2197124. ABSTRACT

4. Miola, A., Alvarez-Villalobos, N.A., Ruiz-Hernandez, F.G., De Filippis, E., Veldic, M., Prieto, M.L., Singh, B., Sanchez Ruiz, J.A., Nunez, N.A., Resendez, M.G., Romo-Nava, F., McElroy, S.L., Ozerdem, A., Biernacka, J.M., Frye, M.A. and Cuellar-Barboza, A.B. (2023) 'Insulin resistance in bipolar disorder: A systematic review of illness course and clinical correlates', *Journal of Affective Disorders*, pp. S0165-0327(23)00529–3. Available at: https://doi.org/10.1016/j.jad.2023.04.068.
5. Sullivan, M., Fernandez-Aranda, F., Camacho-Barcia, L., Harkin, A., Macrì, S., Mora-Maltas, B., Jiménez-Murcia, S., O'Leary, A., Ottomana, A.M., Presta, M., Slattery, D., Scholtz, S. and Glennon, J.C. (2023) 'Insulin and disorders of behavioural flexibility', *Neuroscience & Biobehavioral Reviews*, 150, p. 105169. Available at: https://doi.org/10.1016/j.neubiorev.2023.105169. ABSTRACT

Neurology

1. Bai, L., Zhou, Y., Zhang, J. and Ma, J. (2023) 'The Role of a Ketogenic Diet in the Treatment of Dementia in Type 2 Diabetes Mellitus', *Nutrients*, 15(8), p. 1971. Available at: https://doi.org/10.3390/nu15081971.
2. Perlman, J., Lehner-Gulotta, D., Wetmore, E., Coleman, R., Banwell, B., Bergqvist, A.G., Chen, S., Conaway, M., Goldman, M., Morse, A.M. and Brenton, J. (2023) 'Ketogenic Diet Intervention Improves Sleep in Patients with Relapsing Multiple Sclerosis (P8-3.009)', *Neurology*, 100(17 Supplement 2). Available at: https://doi.org/10.1212/WNL.0000000000202949. ABSTRACT
3. Teixeira, F.J.P., Shannon, J., Robinson, C., Ahmad, B., Katz, J., Miao, G., Seckar, J., Giraldez, M.B., Busl, K., Cervenka, M. and Maciel, C. (2023) 'The Utilization of the Ketogenic Diet for Adults with Status Epilepticus (P8-7.003)', *Neurology*, 100(17 Supplement 2). Available at: https://doi.org/10.1212/WNL.0000000000203059. ABSTRACT

Mental Health

1. Dietch, D.M., Kerr-Gaffney, J., Hockey, M., Marx, W., Ruusunen, A., Young, A.H., Berk, M. and Mondelli, V. (2023) 'Efficacy of low carbohydrate and ketogenic diets in treating mood and anxiety disorders: systematic review and implications for clinical practice', *BJPsych Open*, 9(3), p. e70. Available at: https://doi.org/10.1192/bjo.2023.36.

Case studies

1. Chmiel, I. (2022) 'Ketogenic diet in therapy of bipolar affective disorder - case report and literature review', *Psychiatria Polska*, 56(6), pp. 1345–1363. Available at: https://doi.org/10.12740/PP/OnlineFirst/136356.
2. Rodríguez-Ramallo, H., Báez-Gutiérrez, N., Fernandez, J.V. and Araujo-Rodríguez, F.J. (2023) 'Choice of pharmaceutical form as a key factor during ketogenic diet: a case report', *European*

Journal of Hospital Pharmacy, 30(3), pp. 180–182. Available at: https://doi.org/10.1136/ejhpharm-2021-002727. ABSTRACT

3. Rohatgi, S., Rao, P., Nirhale, S., Naphade, P. and Dubey, P. (2023) 'GLUT-1 Deficiency Syndrome; HSP Mimic: A Case Report', *Annals of Indian Academy of Neurology* [Preprint]. Available at: https://doi.org/10.4103/aian.aian_955_22. (treated with KD - gait improvement)

Preclinical studies showing promise

1. Gureev, A.P., Silachev, D.N., Sadovnikova, I.S., Krutskikh, E.P., Chernyshova, E.V., Volodina, D.E., Samoylova, N.A., Potanina, D.V., Burakova, I.Y., Smirnova, Y.D., Popov, V.N. and Plotnikov, E.Y. (2023) 'The Ketogenic Diet but not Hydroxycitric Acid Keeps Brain Mitochondria Quality Control and mtDNA Integrity Under Focal Stroke', *Molecular Neurobiology* [Preprint]. Available at: https://doi.org/10.1007/s12035-023-03325-8. ABSTRACT
2. Li, C., Pan, J., Sun, P., Wang, Shuai, Wang, Songlin, Feng, W., Chen, S., Chai, X., Zhao, S. and Zhu, X. (no date) 'Ketogenic Diet Alleviates Hypoglycemia-Induced Neuroinflammation via Modulation the Gut Microbiota in Mice', *Molecular Nutrition & Food Research*, n/a(n/a), p. 2200711. Available at: https://doi.org/10.1002/mnfr.202200711. ABSTRACT
3. Qiu, Y., Hu, X., Xu, C., Lu, C., Cao, R., Xie, Y. and Yang, J. (2023) 'Ketogenic diet alleviates renal fibrosis in mice by enhancing fatty acid oxidation through the free fatty acid receptor 3 pathway', *Frontiers in Nutrition*, 10, p. 1127845. Available at: https://doi.org/10.3389/fnut.2023.1127845.