

September 12, 2025

The Honorable Dr. Mehmet Oz Administrator Centers for Medicare & Medicaid Services Department of Health and Human Services Baltimore, MD 21244–1850

Submitted via www.regulations.gov [Docket No. CMS-1832-P]

Dear Administrator Oz:

The Coalition for Metabolic Health (CMH) appreciates the opportunity to respond to the Centers for Medicare & Medicaid Services's (CMS) <u>proposed rule</u> [Docket No. CMS-1832-P], specifically the Requests for Information on "Prevention and Management of Chronic Disease" and on "Well-Being and Nutrition Measures."

CMH is a national alliance of researchers, clinicians, philanthropists, nonprofits, business leaders, and advocates ushering in a new era in health care by making metabolic health mainstream. We share a commitment to reducing the burden of chronic disease and advancing evidence-based nutrition and public health policy.

RE: Prevention and Management of Chronic Disease Request for Information

We applaud CMS for prioritizing chronic disease prevention and management and for seeking input on structural reforms to the Physician Fee Schedule (PFS). In alignment with President Trump's Executive Order, "Establishing the President's Make America Healthy Again Commission" and CMS's goals -- and the broader public health imperative to reverse chronic disease trends -- we urge consideration of the following recommendations:

I. Expand Access to and Coverage for Medical Nutrition Therapy (MNT)

Nutrition is a primary driver of chronic disease and a proven lever for prevention, management, and cost containment. Medical Nutrition Therapy (MNT) improves clinical outcomes, reduces medication dependence, and lowers healthcare utilization, yet current Medicare coverage is limited to diabetes and kidney disease. We recommend expanding MNT to a broader range of metabolic diseases, including prediabetes, obesity, metabolic dysfunction-associated steatotic liver disease (MASLD), polycystic ovary syndrome (PCOS), cardiovascular disease, cancer, inflammatory bowel disease, neurodegenerative disorders, mental illness, and other neuropsychiatric conditions. These conditions share common metabolic underpinnings -- particularly insulin resistance and chronic inflammation -- and addressing them through targeted nutrition support would reduce complications and improve quality of life for millions of Americans.

Metabolic syndrome is defined by a cluster of interrelated risk factors -- dyslipidemia, abdominal obesity, hypertension, and hyperglycemia -- that significantly elevate the risk for type 2 diabetes, heart disease, and related outcomes. Insulin resistance -- a hallmark of metabolic dysfunction -- is also increasingly recognized as a contributing factor to mental health disorders such as depression, highlighting the bidirectional relationship between metabolic and mental health. By



addressing these root metabolic drivers through MNT, CMS has an opportunity to improve both physical and mental health outcomes while advancing its goals around value-based, preventive care. This policy change would also yield long-term cost savings through reduced hospitalizations, medication use, and disease progression (Buchanan et al., 2025; Virta Health, 2021).

We recommend that CMS expand covered indications for MNT to include a broader range of conditions with demonstrated nutritional intervention benefit, such as:

- Metabolic and Endocrine Disorders (prediabetes, type 1 and type 2 diabetes, gestational diabetes, obesity, PCOS, MASLD)
 - Nutrition therapy reduces HbA1c, fasting glucose, and insulin resistance; supports weight loss; enables prediabetes and diabetes reversal; improves maternal and neonatal outcomes in gestational diabetes; and reduces medication use and long-term complications (Adams et al., 2025; Athinarayanan et al., 2019; Buchanan et al., 2025; Di et al., 2025; Dorans et al., 2022; Lean et al., 2024; Evert et al., 2019; Goldenberg et al., 2021; Jayedi et al., 2022; McKenzie et al., 2024; Sterner Isaksson et al., 2023; Unwin et al., 2023; Volek et al., 2024; Wei et al., 2024; Zhang et al., 2018; Zheng et al., 2025). CMS already recognizes the value of MNT by covering it for diabetes; coverage should also extend to other metabolic diseases where evidence is strong:
 - Obesity: The most recent national data show that obesity prevalence exceeds 40% among U.S. adults and drives type 2 diabetes, hypertension, heart disease, and certain cancers (CDC, 2024). Nutrition therapy, especially carbohydrate reduction, has been shown to improve obesity-related outcomes -- including weight loss, enhanced insulin sensitivity, and decreased reliance on diabetes medications (Alexander et al., 2022; Cucuzzella et al., 2024; Ebbeling et al., 2018; Kelly et al., 2020; Lei et al., 2022; Shih et al., 2019; Zhang et al., 2024). Expanding MNT access for obesity would enable sustainable lifestyle change and reduce reliance on pharmacologic or surgical interventions.
 - MASLD (Metabolic dysfunction-associated steatotic liver disease): MASLD, currently affecting about 30% of U.S. adults, is now a leading indication for liver transplantation (Wang et al., 2020; Younossi et al., 2016). Insulin resistance and obesity are central drivers, and nutrition therapy targeting carbohydrate reduction and weight loss consistently improves liver fat, inflammation, and fibrosis (Cunha et al., 2020; D'Abbondanza et al., 2020; De Nucci et al., 2023; Holmer et al., 2021; Luukkonen et al., 2020; Rinaldi et al., 2023; Vilar-Gomez et al., 2015, 2019). Pharmacological options are limited to only those patients with advanced fibrosis, leaving the vast majority of patients dependent on MNT as an essential intervention for prevention and management.
 - PCOS (Polycystic ovary syndrome): PCOS is increasingly recognized as a metabolic disorder, with insulin resistance present in roughly 75% of women with the condition -- including over 50% of lean women and up to 95% of those who are obese (Tosi et al., 2017). It is a leading cause of anovulatory infertility and significantly increases the lifetime risk of type 2 diabetes, gestational diabetes, and MASLD (Azziz et al., 2016; Wekker et al., 2020). Nutrition therapy -- especially low-carbohydrate or ketogenic approaches -- has shown greater improvements in weight, ovulation, and androgen levels compared to conventional diets (Cincione et al., 2023; Khalid et al., 2023; Mei et al., 2022; Pandurevic et al., 2023). Including PCOS within MNT coverage



would address root metabolic dysfunction and reduce downstream fertility and pregnancy complications.

• Cardiovascular Disease (hypertension, dyslipidemia, atherosclerosis)

Cardiovascular disease (CVD) remains the leading cause of death in the United States, with mortality rates continuing to rise (CDC, 2025). It is estimated that more than half of CVD cases and 20% of premature deaths are attributable to five modifiable metabolic risk factors: body mass index, blood pressure, non-high-density lipoprotein cholesterol, smoking, and diabetes (Global Cardiovascular Risk Consortium, 2023, 2025).

Dietary interventions can successfully lower blood pressure, improve lipid profiles, and reduce CVD risk (Estruch et al., 2018; Lu et al., 2024; Shan et al., 2020). The World Health Organization (WHO), in collaboration with international stakeholders -- including the Centers for Disease Control and Prevention (CDC) and the American Heart Association (AHA) -- has emphasized a strategic approach to strengthening primary care management of CVD, highlighting the role of optimizing dietary patterns and other preventive strategies (WHO, 2020). Expanding MNT to explicitly cover cardiovascular disease would enable clinicians to target the root metabolic causes of CVD rather than treating late-stage complications.

Oncology (cancer prevention, treatment, and survivorship)

Cancer is increasingly recognized as a disease of disordered metabolism, with abnormal glucose and insulin signaling fueling tumor growth and progression for many types of tumors (Leitner et al., 2022; Marino et al., 2024). Early clinical evidence -- including randomized trials -- shows nutrition therapy can improve insulin levels, treatment tolerance, and quality of life in patients with breast and other cancers (Cohen et al., 2018; Khodabakhshi et al., 2020, 2020, 2021; Klement et al., 2020; Vernieri et al., 2022). National oncology guidelines also now emphasize nutrition and weight management as integral to survivorship care (Rock et al., 2022).

Beyond survivorship, nutrition support reduces risk of malnutrition, preserves function, and may enhance responsiveness to chemotherapy, radiation, and immunotherapy (Abene & Deng, 2025; Rock et al., 2022). Expanding MNT coverage to oncology would address a major gap in supportive cancer care and reduce costs by decreasing complications and reliance on high-cost interventions.

• Inflammatory Bowel Disease (ulcerative colitis, Crohn's disease)

Inflammatory bowel disease (IBD) affects 2.4-3.1 million Americans and incurs over \$8.5 billion in annual healthcare costs (CDC, 2024). Intake of ultra-processed foods is associated with an increased risk of IBD, including Crohn's disease (Chen et al., 2023; Narula et al., 2021). Emerging evidence supports nutrition therapy as a disease-modifying intervention.

Exclusive enteral nutrition is an effective, guideline-recommended option for pediatric Crohn's disease, and Crohn's disease exclusion diets combined with partial enteral nutrition achieve remission rates comparable to steroids (Levine et al., 2019). Ketone bodies like β-hydroxybutyrate show anti-inflammatory effects in experimental colitis models (Huang et al., 2022), and elimination diets (e.g., carnivore) have induced remission in small human case studies (Norwitz & Soto-Mota, 2024). Including IBD in MNT coverage would support non-pharmacologic, metabolism-targeted interventions for remission and symptom control.





 Neurodegenerative and Cognitive Disorders (Alzheimer's disease, Parkinson's disease, mild cognitive impairment)

Emerging evidence highlights the role of nutrition therapy in preserving brain health and delaying disease progression. Alzheimer's disease, sometimes referred to as "type 3 diabetes," is strongly linked to impaired glucose metabolism and insulin resistance in the brain (de la Monte, 2014; Kandimalla et al., 2017; Kellar & Craft, 2020).

Dietary interventions such as low-carbohydrate, ketogenic, and Mediterranean patterns have been shown to improve cognition, reduce neuroinflammation, and may slow functional decline in Alzheimer's and mild cognitive impairment (Brandt et al., 2019; Buchholz et al., 2024; Cunnane et al., 2020; Phillips et al., 2021; Taylor et al., 2018; van Soest et al., 2024). In Parkinson's disease, nutrition therapy supports both motor and non-motor symptoms, enhances the efficacy of medication, and addresses weight loss and malnutrition (Choi et al., 2024; Krikorian et al., 2019; Phillips et al., 2018; Vanitallie et al., 2005). Expanding MNT coverage to neurodegenerative conditions would address nutritional vulnerabilities, improve quality of life, and potentially reduce long-term care costs.

 Mental Illness (depression, bipolar disorder, schizophrenia) and Neuropsychiatric Disorders (anxiety disorders, autism spectrum disorder, eating disorders, and alcohol use disorder):

Mental disorders are among the leading causes of disability and are associated with higher rates of cardiometabolic disease and premature mortality (Chan et al., 2023; Correll et al., 2017; Firth et al., 2019; Walker et al., 2015). Psychotropic medications often achieve only partial remission and carry metabolic side effects in both children and adults (Akinola et al., 2023; Catalan et al., 2021; Drosos et al., 2024; Holt, 2019; Pigott et al., 2023; Rogdaki et al., 2024; Smith et al., 2025). Nutrition therapy can offer a safer, evidence-informed supplement:

For instance, studies have demonstrated that Mediterranean diets can support mood and alleviate depressive symptoms (Bizzozero-Peroni et al., 2025; Lassale et al., 2019). Randomized controlled trials such as the SMILES study demonstrate that dietary interventions can induce remission in major depression (Jacka et al., 2017). Ketogenic and low-carbohydrate interventions also show early promise -- including benefits for mood and psychosis in major depressive disorder, bipolar disorder, and schizophrenia -- with metabolic improvements and reduced symptom burden (Campbell et al., 2025; Danan et al., 2022; Decker et al., 2025; Sethi et al., 2024).

Emerging evidence suggests potential benefits in anxiety disorders, autism spectrum disorder, eating disorders, and alcohol use disorder as well (Anderson et al., 2025). Professional consensus statements now recommend integrating nutrition into mental health care, reinforcing its role as an adjunct to standard treatment (Teasdale et al., 2025; WHO, 2018). Expanding MNT coverage to these conditions would allow clinicians to address underlying metabolic dysfunction, reduce medication burden, and improve long-term outcomes.





Table 1: ICD-10 Codes for Conditions Recommended for Expanded MNT Coverage

Condition / Disorder	ICD-10 Code(s)
Prediabetes	R73.03
Obesity	E66.9, E66.0, E66.01, E66.1, E66.2, E66.8
Polycystic ovary syndrome (PCOS)	E28.2
MASLD (Metabolic dysfunction-associated steatotic liver disease)	K76.0
Hypertension	110, 111, 113
Dyslipidemia	E78.0, E78.1, E78.2, E78.5
Atherosclerosis / Ischemic heart disease	170, I21-I22, I20, I25.1-I25.9
Cancer (all malignant neoplasms)	C00-C97
Crohn's disease	K50
Ulcerative colitis	K51
Alzheimer's disease	G30
Parkinson's disease	G20-G21
Mild cognitive impairment (MCI)	G31.84, F06.7, F09
Major depressive disorder	F32-F33
Bipolar disorder	F31
Schizophrenia	F20
Anxiety disorders	F40-F48
Autism spectrum disorder	F84.0-F84.9
Eating disorders	F50
Alcohol use disorder	F10





II. Expand the Role of RDNs, RDs, and Nutritionists

Dietitians and nutrition professionals are trained specialists and often the most effective providers of intensive nutrition counseling. Expanding billing privileges and scope-of-practice flexibility would improve access, especially in underserved areas. We recommend that CMS:

- Allow Registered Dietitian Nutritionists (RDNs), Registered Dieticians (RDs), and licensed nutritionists and coaches to independently bill for MNT services, ensuring they are fully recognized as qualified healthcare professionals.
- Remove the requirement for a primary care referral for patients with certain metabolic conditions listed above, where it is medically necessary for an RDN or RD to initiate treatment directly. Given their education and training, these professionals have the clinical expertise to determine when MNT is required.
- Permit nurse practitioners, physician assistants, clinical nurse specialists, and psychologists to refer patients for MNT, expanding beyond physicians as the sole referral source.
- Expand eligibility for independent National Provider Identifier (NPI) numbers and billing privileges to individuals with recognized certifications in chronic disease and nutrition management (e.g., wellness coaches or certified specialists), contingent on referral from a qualified provider or RDN/RD.
- **Support team-based models of care** where MNT is integrated into chronic disease management and reimbursed accordingly.

III. Increase MNT Sessions and Reimbursement

Medical nutrition therapy (MNT) is a cornerstone of managing insulin resistance and metabolic dysfunction, yet current coverage and coding structures limit its effectiveness. Sustained engagement and coding specificity are crucial for improving outcomes, reducing downstream costs, and aligning reimbursement with evidence-based care. We recommend that CMS:

- Expand access by increasing session coverage: The current cap of three hours per year is insufficient for conditions that require longer-term and more intensive therapy. Increasing the allowable number of covered hours for all eligible disease states will better support ongoing management and improved outcomes (Adams et al., 2025; Society of Metabolic Health Practitioners, 2022).
- Provide flexibility for medical necessity: Allow RDNs, RDs, or supervising physicians (in cases where referral is required, such as for wellness coaches) to document medical necessity and authorize additional hours of MNT when clinically indicated.

IV. Create Distinct Codes for Evidence-Based Nutrition Therapies

Current MNT codes do not differentiate among evidence-based nutrition approaches, limiting the ability to track utilization, measure outcomes, and ensure appropriate reimbursement. CMS has a clear precedent for creating HCPCS codes for MNT to address gaps where CPT codes are insufficient, and a similar approach is warranted here. Establishing new HCPCS codes





would recognize distinct therapies, supporting quality measurement and cost-effectiveness in value-based care, as well as tracking outcomes and utilization. We recommend that CMS:

- Create new HCPCS codes for evidence-based nutrition interventions, including:
 - o Reduced-carbohydrate MNT, defined as 50-130g of dietary carbohydrate per day
 - Ketogenic MNT, defined as 50g or less of dietary carbohydrate per day

V. Support Coverage for Tools that Improve Self-Management

CMS should consider creating separate coding and payment for intensive lifestyle interventions that are not adequately captured under the current Physician Fee Schedule (PFS), particularly those supported by real-time data from wearable technologies. The integration of continuous glucose monitors (CGMs) and continuous ketone monitors (CKMs) into preventive and chronic disease management holds significant potential to improve health outcomes, promote patient engagement, and reduce long-term costs.

Specifically, CGMs can support real-time dietary, medication, and lifestyle decisions for managing the diseases listed in Table 1. Meanwhile, CKMs can help patients and clinicians monitor adherence to therapeutic carbohydrate reduction for addressing insulin resistance, type 2 diabetes, and metabolic syndrome associated with these conditions (Puchalska, 2024). We recommend that CMS:

- Expand coverage for CGMs beyond insulin-using patients, including individuals with prediabetes, metabolic syndrome, and other chronic conditions that benefit from glycemic monitoring, listed in Table 1
- Collaborate with the Food and Drug Administration (FDA) to expedite review and approval pathways for CKMs as tools to manage diet-responsive chronic conditions listed in Table 1
- Create a new benefit category or provisional payment code under Medicare Part B for "intensive lifestyle interventions supported by wearable technology."
- Test these interventions within Center for Medicare and Medicaid Innovation (CMMI) models, allowing flexibility to use funds for wearables, coaching, and remote monitoring.
- Incorporate structured behavioral incentives (financial and non-financial) to reward sustained use and behavior change, building on the Medicare Diabetes Prevention Program model.

VI. Support Coverage for Medically-Tailored Meals

CMS should create separate coding and payment for medically-tailored meals (MTMs), including ketogenic MTMs, as an incident-to-service under general supervision. For individuals with chronic conditions -- such as those listed in Table 1 -- clinically tailored nutrition is a core component of disease management.

Research shows that MTMs improve health outcomes, support recovery post-discharge, enhance medication adherence, and lower overall healthcare costs by reducing hospitalizations and emergency department use (Berkowitz et al., 2019; Compher et al., 2025; Hager et al.,



2022; Sautter et al, 2024). MTMs are especially impactful for individuals with cardiometabolic conditions, where dietary therapy can be as effective as pharmacologic treatment. CMS can further improve access and program integrity by enabling billing providers to refer patients to qualified community-based organizations under appropriate supervision. We recommend that CMS:

• Cover medically-tailored meals (MTMs), including ketogenic MTMs, as a reimbursable service for beneficiaries with eligible chronic conditions listed in Table 1.

RE: Well-Being and Nutrition Measures Request for Information

We strongly support CMS's initiative to develop well-being and nutrition-focused quality measures. We recommend incorporating metabolic biomarkers and digital tools that can detect early dysfunction and guide individualized intervention.

I. Expand Metabolic Monitoring and Early Detection of Insulin Resistance as Quality Measures

Nearly nine in 10 U.S. adults exhibit signs of metabolic dysfunction (O'Hearn et al., 2022), yet many remain undiagnosed until disease progression is advanced. Early detection of insulin resistance enables timely, preventive dietary and lifestyle interventions -- potentially reversing the trajectory of type 2 diabetes, cardiovascular disease, and other related conditions. This is particularly critical for populations at elevated risk, including individuals taking antipsychotic medications, which are well-documented to increase the risk of metabolic complications in both children and adults (Akinola et al., 2023; Holt, 2019; Rogdaki et al., 2024; Smith et al., 2025). Evidence also suggests that metabolic dysfunction may be intrinsic to mental illnesses such as bipolar disorder, depression, and schizophrenia, independent of medication use (Goldfarb et al., 2022; Kulkarni et al., 2024).

To address this gap, we recommend routine clinical screening for insulin resistance using affordable and widely available tests for Hemoglobin A1c (HbA1c), fasting glucose, and fasting insulin (the latter two tests can be used to calculate Homeostatic Model Assessment of Insulin Resistance (HOMA-IR), a sensitive marker that can detect insulin resistance years before blood glucose alone).

Current National Committee for Quality Assurance (NCQA) measures -- such as Metabolic Monitoring for Children and Adolescents on Antipsychotics (APM) and Comprehensive Diabetes Care -- represent important steps, but are too narrowly focused. Given the widespread prevalence of metabolic dysfunction -- which comprises multiple interrelated risk factors driving many chronic conditions, including those listed in Table 1 -- we recommend that CMS:

- Expand metabolic monitoring measures to include adults on antipsychotics.
- **Broaden metabolic monitoring criteria** beyond glucose and lipid testing to include HbA1c, fasting glucose, fasting insulin, and HOMA-IR.
- Develop a dedicated metabolic monitoring measure for children, adolescents, and adults with conditions commonly associated with metabolic syndrome, as listed in Table 1.



Conclusion

Overall, we urge CMS to consider the following priority actions to advance preventive, nutrition-based care and improve outcomes for patients with chronic and diet-related conditions:

- Expand and modernize MNT coverage to reflect current evidence and include a broader range of conditions where nutrition therapy is clinically shown to improve outcomes.
- **Broaden the MNT provider pool and billing privileges** by allowing RDNs, RDs, licensed nutritionists, and certified coaches to deliver and bill for MNT where appropriate.
- Increase MNT access and flexibility by expanding covered MNT sessions and allowing greater discretion based on clinical necessity.
- **Establish new billing codes** for advanced, evidence-based MNT such as reduced-carbohydrate and ketogenic interventions.
- Support reimbursement for digital monitoring tools and wearables that enhance self-management and track metabolic outcomes in real time.
- Ensure coverage of MTMs as a reimbursable service for eligible chronic conditions.
- Adopt early screening tools and integrate metabolic health monitoring into CMS quality and performance metrics.

By updating the Physician Fee Schedule to better reflect the root causes of chronic disease, CMS has a pivotal opportunity to lead a shift toward proactive, patient-centered, and nutrition-forward care that reduces costs and improves lives.

CMH welcomes the opportunity to provide further clinical, policy, and scientific expertise as CMS considers these critical reforms.

Sincerely.

Coalition for Metabolic Health

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References

- 1. Abene, J., & Deng, J. (2025). Evaluating the role of dietary interventions in reducing chemotherapy toxicities in cancer patients: a systematic review. Journal of cancer survivorship, 10.1007/s11764-025-01777-6. Advance online publication.
- 2. Adams, R. N., Athinarayanan, S. J., Zoller, A. R., McKenzie, A. L., & Ratner, R. E. (2025). Sustained metabolic improvements in a remotely delivered ketogenic nutrition programme for veterans with type 2 diabetes: A 3-year observational study. *Diabetes*, obesity & metabolism, 27(9), 4825-4835.
- 3. Akinola, P. S., Tardif, I., & Leclerc, J. (2023). Antipsychotic-Induced Metabolic Syndrome: A Review. Metabolic syndrome and related disorders, 21(6), 294–305.
- 4. Alexander, L., Christensen, S. M., Richardson, L., Ingersoll, A. B., Burridge, K., Golden, A., Karjoo, S., Cortez, D., Shelver, M., & Bays, H. E. (2022). Nutrition and physical activity: An Obesity Medicine Association (OMA) Clinical Practice Statement 2022. Obesity pillars, 1, 100005.
- 5. Anderson J., Ozan, E., Chouinard, VA., Grant, G., MacDonald, A., Thakkar, L., Palmer, C. (2025). The Ketogenic Diet as a Transdiagnostic Treatment for Neuropsychiatric Disorders: Mechanisms and Clinical Outcomes. Curr Treat Options Psych, 12, 1.
- 6. Athinarayanan, S. J., Adams, R. N., Hallberg, S. J., McKenzie, A. L., Bhanpuri, N. H., Campbell, W. W., Volek, J. S., Phinney, S. D., & McCarter, J. P. (2019). Long-Term Effects of a Novel Continuous Remote Care Intervention Including Nutritional Ketosis for the Management of Type 2 Diabetes: A 2-Year Non-randomized Clinical Trial. Frontiers in Endocrinology, 10, 348.
- 7. Azziz, R., Carmina, E., Chen, Z., et al. (2016). Polycystic ovary syndrome. Nature Reviews Disease Primers, 2(1), 16057.
- 8. Berkowitz, S. A., Terranova, J., Randall, L., Cranston, K., Waters, D. B., & Hsu, J. (2019). Association Between Receipt of a Medically Tailored Meal Program and Health Care Use. JAMA internal medicine, 179(6), 786–793.
- 9. Bizzozero-Peroni, B., Martínez-Vizcaíno, V., Fernández-Rodríguez, R., Jiménez-López, E., Núñez de Arenas-Arroyo, S., Saz-Lara, A., Díaz-Goñi, V., & Mesas, A. E. (2025). The impact of the Mediterranean diet on alleviating depressive symptoms in adults: a systematic review and meta-analysis of randomized controlled trials. *Nutrition reviews*, 83(1), 29-39.
- 10. Brandt J, Buchholz A, Henry-Barron B, Vizthum D, Avramopoulos D, Cervenka MC. (2019). Preliminary report on the feasibility and efficacy of the modified Atkins diet for treatment of mild cognitive impairment and early Alzheimer's disease. J Alzheimers Dis. 68:969-81.
- 11. Buchanan, L., Calkins, M., Kalayjian, T., Norwitz, N. G., Teicholz, N., Unwin, D., & Soto-Mota, A. (2025). TOWARD, a metabolic health intervention, demonstrates robust 1-year weight loss and cost-savings through deprescription. Frontiers in Nutrition, 12, 1548609.
- 12. Buchholz A, Deme P, Betz JF, Brandt J, Haughey N, Cervenka MC. (2024). A randomized feasibility trial of the modified Atkins diet in older adults with mild cognitive impairment due to Alzheimer's disease. Front Endocrinol. 15:1182519.
- 13. Campbell, I. H., Needham, N., Grossi, H., Kamenska, I., Luz, S., Sheehan, S., Thompson, G., Thrippleton, M. J., Gibbs, M. C., Leitao, J., Moses, T., Burgess, K., Rigby, B. P., Simpson, S. A., McIntosh, E., Brown, R., Meadowcroft, B., Creasy, F., Mitchell-Grigorjeva, M., Norrie, J., ... Smith, D. J. (2025). A pilot study of a ketogenic diet in bipolar disorder: clinical, metabolic and magnetic resonance spectroscopy findings. BJPsych Open, 11(2), e34.



- 14. Catalan, A., Richter, A., Salazar de Pablo, G., Vaquerizo-Serrano, J., Mancebo, G., Pedruzo, B., Aymerich, C., Solmi, M., González-Torres, M. Á., Gil, P., McGuire, P., & Fusar-Poli, P. (2021). Proportion and predictors of remission and recovery in first-episode psychosis: Systematic review and meta-analysis. European Psychiatry, 64(1), e69.
- 15. Centers for Disease Control and Prevention (CDC). (2024). Inflammatory bowel disease facts and statistics. Retrieved from https://www.cdc.gov/inflammatory-bowel-disease/php/facts-stats/index.html.
- 16. CDC. (2024). Obesity and Severe Obesity Prevalence in Adults: United States, August 2021-August 2023. Retrieved from: https://www.cdc.gov/nchs/products/databriefs/db508.htm.
- 17. CDC. (2025). Heart disease facts. Retrieved from https://www.cdc.gov/heart-disease/data-research/facts-stats/.
- 18. CDC. (2025). Heart disease risk factors. Retrieved from https://www.cdc.gov/heart-disease/risk-factors/.
- 19. Chen, J., Wellens, J., Kalla, R., Fu, T., Deng, M., Zhang, H., Yuan, S., Wang, X., Theodoratou, E., Li, X., & Satsangi, J. (2023). Intake of Ultra-processed Foods Is Associated with an Increased Risk of Crohn's Disease: A Cross-sectional and Prospective Analysis of 187,154 Participants in the UK Biobank. Journal of Crohn's & Colitis, 17(4), 535-552.
- 20. Chan, J. K. N., Correll, C. U., Wong, C. S. M., Chu, R. S. T., Fung, V. S. C., Wong, G. H. S., Lei, J. H. C., & Chang, W. C. (2023). Life expectancy and years of potential life lost in people with mental disorders: a systematic review and meta-analysis. EClinicalMedicine, 65, 102294.
- 21. Choi, A. H., Delgado, M., Chen, K. Y., Chung, S. T., Courville, A., Turner, S. A., Yang, S., Airaghi, K., Dustin, I., McGurrin, P., Wu, T., Hallett, M., & Ehrlich, D. J. (2024). A randomized feasibility trial of medium chain triglyceride-supplemented ketogenic diet in people with Parkinson's disease. BMC Neurology, 24(1), 106.
- 22. Cohen, C. W., Fontaine, K. R., Arend, R. C., Soleymani, T., & Gower, B. A. (2018). Favorable Effects of a Ketogenic Diet on Physical Function, Perceived Energy, and Food Cravings in Women with Ovarian or Endometrial Cancer: A Randomized, Controlled Trial. *Nutrients*, 10(9), 1187.
- 23. Compher, C., Henstenburg, J. A., Aloupis, M., Sun, A., Quinn, R., Emery, E., Thomas, J., Crafford, A. G., & Schwartz, D. R. (2025). The nutritional impact of 7 versus 21 home-delivered medically tailored meals in patients with heart failure and malnutrition risk: a random order crossover feeding trial (MEDIMEALS). BMC nutrition, 11(1), 56.
- 24. Correll, C. U., Solmi, M., Veronese, N., Bortolato, B., Rosson, S., Santonastaso, P., Thapa-Chhetri, N., Fornaro, M., Gallicchio, D., Collantoni, E., Pigato, G., Fayaro, A., Monaco, F., Kohler, C., Vancampfort, D., Ward, P. B., Gaughran, F., Carvalho, A. F., & Stubbs, B. (2017). Prevalence, incidence and mortality from cardiovascular disease in patients with pooled and specific severe mental illness: a large-scale meta-analysis of 3,211,768 patients and 113,383,368 controls. World Psychiatry: Official journal of the World Psychiatric Association (WPA), 16(2), 163–180.
- 25. Cincione, I. R., Graziadio, C., Marino, F., Vetrani, C., Losavio, F., Savastano, S., Colao, A., & Laudisio, D. (2023). Short-time effects of ketogenic diet or modestly hypocaloric Mediterranean diet on overweight and obese women with polycystic ovary syndrome. Journal of Endocrinological Investigation, 46(4), 769–777.
- 26. Cucuzzella, M., Bailes, J., Favret, J., Paddu, N., & Bradley, A. B. (2024). Beyond Obesity and Overweight: the Clinical Assessment and Treatment of Excess Body Fat In Children: Part 2 - the Prescription of Low-Carbohydrate Eating as the First Approach. Current obesity reports, 13(2), 286-294.



- 27. Cunha, G. M., Guzman, G., Correa De Mello, L. L., Trein, B., Spina, L., Bussade, I., Marques Prata, J., Sajoux, I., & Countinho, W. (2020). Efficacy of a 2-Month Very Low-Calorie Ketogenic Diet (VLCKD) Compared to a Standard Low-Calorie Diet in Reducing Visceral and Liver Fat Accumulation in Patients With Obesity. *Frontiers in Endocrinology*, 11, 607.
- 28. Cunnane S, Fortier M, Castellano C-A, et al. (2020) Improved brain energetics and cognition after a 6-month ketogenic intervention in mild cognitive impairment: final results of the Benefic Trial. *Alzheimers Dement*.16:e037961
- 29. D'Abbondanza, M., Ministrini, S., Pucci, G., Nulli Migliola, E., Martorelli, E. E., Gandolfo, V., Siepi, D., Lupattelli, G., & Vaudo, G. (2020). Very Low-Carbohydrate Ketogenic Diet for the Treatment of Severe Obesity and Associated Non-Alcoholic Fatty Liver Disease: The Role of Sex Differences. *Nutrients*, 12(9), 2748.
- 30. Danan, A., Westman, E. C., Saslow, L. R., & Ede, G. (2022). The Ketogenic Diet for Refractory Mental Illness: A Retrospective Analysis of 31 Inpatients. *Frontiers in Psychiatry*, 13, 951376.
- 31. Decker, D. D., Patel, R., Cheavens, J., Hayes, S. M., Whitted, W., Lee, A. J., Buga, A., Robinson, B. T., Crabtree, C. D., Kackley, M. L., Stoner, J. T., Sapper, T. N., Chebbi, A., & Volek, J. S. (2025). A pilot study examining a ketogenic diet as an adjunct therapy in college students with major depressive disorder. *Translational psychiatry*, 15(1), 322.
- 32. de la Monte, S. M. (2014). Type 3 diabetes is sporadic Alzheimer's disease: mini-review. *European Neuropsychopharmacology,* 24(12), 1954–1960.
- 33. De Nucci, S., Bonfiglio, C., Donvito, R., Di Chito, M., Cerabino, N., Rinaldi, R., Sila, A., Shahini, E., Giannuzzi, V., Pesole, P. L., Coletta, S., Lanzilotta, E., Piazzolla, G., Cozzolongo, R., Giannelli, G., & De Pergola, G. (2023). Effects of an Eight Week Very Low-Calorie Ketogenic Diet (VLCKD) on White Blood Cell and Platelet Counts in Relation to Metabolic Dysfunction-Associated Steatotic Liver Disease (MASLD) in Subjects with Overweight and Obesity. *Nutrients*, 15(20), 4468.
- 34. Di, J., Fan, J., & Ma, F. (2025). Comparative efficacy of dietary interventions for glycemic control and pregnancy outcomes in gestational diabetes: a network meta-analysis of randomized controlled trials. *Frontiers in endocrinology*, 16, 1512493.
- 35. Dorans, K. S., Bazzano, L. A., Qi, L., He, H., Chen, J., Appel, L. J., Chen, C. S., Hsieh, M. H., Hu, F. B., Mills, K. T., Nguyen, B. T., O'Brien, M. J., Samet, J. M., Uwaifo, G. I., & He, J. (2022). Effects of a Low-Carbohydrate Dietary Intervention on Hemoglobin A1c: A Randomized Clinical Trial. *JAMA Network Open*, 5(10), e2238645.
- 36. Drosos, P., Johnsen, E., Bartz-Johannessen, C. A., Larsen, T. K., Reitan, S. K., Rettenbacher, M., & Kroken, R. A. (2024). Remission in schizophrenia spectrum disorders: A randomized trial of amisulpride, aripiprazole and olanzapine. *Schizophrenia research*, 271, 9–18.
- 37. Ebbeling, C. B., Feldman, H. A., Klein, G. L., Wong, J. M. W., Bielak, L., Steltz, S. K., Luoto, P. K., Wolfe, R. R., Wong, W. W., & Ludwig, D. S. (2018). Effects of a low carbohydrate diet on energy expenditure during weight loss maintenance: randomized trial. *BMJ*, 363, k4583.
- 38. Estruch, R., Ros, E., Salas-Salvadó, J., et al. (2018). Primary prevention of cardiovascular disease with a Mediterranean diet supplemented with extra-virgin olive oil or nuts. *New England Journal of Medicine*, 378(25), e34.
- 39. Evert, A. B., Dennison, M., Gardner, C. D., Garvey, W. T., Lau, K. H. K., MacLeod, J., Mitri, J., Pereira, R. F., Rawlings, K., Robinson, S., Saslow, L., Uelmen, S., Urbanski, P. B., & Yancy, W. S., Jr (2019). Nutrition Therapy for Adults With Diabetes or Prediabetes: A Consensus Report. *Diabetes Care*, 42(5), 731–754.
- 40. Firth, J., Siddiqi, N., Koyanagi, A., Siskind, D., Rosenbaum, S., Galletly, C., Allan, S., Caneo, C., Carney, R., Carvalho, A. F., Chatterton, M. L., Correll, C. U., Curtis, J.,



- Gaughran, F., Heald, A., Hoare, E., Jackson, S. E., Kisely, S., Lovell, K., Maj, M., ... Stubbs, B. (2019). The Lancet Psychiatry Commission: a blueprint for protecting physical health in people with mental illness. The Lancet Psychiatry, 6(8), 675–712.
- 41. Global Cardiovascular Risk Consortium (2023). Global Effect of Modifiable Risk Factors on Cardiovascular Disease and Mortality. NEJM, 389(14), 1273–1285.
- 42. Global Cardiovascular Risk Consortium (2025). Global Effect of Cardiovascular Risk Factors on Lifetime Estimates. NEJM, 393(2), 125-138.
- 43. Goldfarb, M., De Hert, M., Detraux, J., Di Palo, K., Munir, H., Music, S., Piña, I., & Ringen, P. A. (2022). Severe Mental Illness and Cardiovascular Disease: JACC State-of-the-Art Review. Journal of the American College of Cardiology, 80(9), 918–933.
- 44. Goldenberg, J. Z., Day, A., Brinkworth, G. D., Sato, J., Yamada, S., Jönsson, T., Beardsley, J., Johnson, J. A., Thabane, L., & Johnston, B. C. (2021). Efficacy and safety of low and very low carbohydrate diets for type 2 diabetes remission: systematic review and meta-analysis of published and unpublished randomized trial data. BMJ, 372, m4743.
- 45. Hager, K., Cudhea, F. P., Wong, J. B., Berkowitz, S. A., Downer, S., Lauren, B. N., & Mozaffarian, D. (2022). Association of National Expansion of Insurance Coverage of Medically Tailored Meals With Estimated Hospitalizations and Health Care Expenditures in the US. JAMA network open, 5(10), e2236898.
- 46. Holmer, M., Lindqvist, C., Petersson, S., Moshtaghi-Svensson, J., Tillander, V., Brismar, T. B., Hagström, H., & Stål, P. (2021). Treatment of NAFLD with intermittent calorie restriction or low-carb high-fat diet - a randomised controlled trial. JHEP Reports, 3(3), 100256.
- 47. Holt R. I. G. (2019). Association Between Antipsychotic Medication Use and Diabetes. Current diabetes reports, 19(10), 96.
- 48. Huang, C., Wang, J., Liu, H., Huang, R., Yan, X., Song, M., Tan, G., & Zhi, F. (2022). Ketone body β-hydroxybutyrate ameliorates colitis by promoting M2 macrophage polarization through the STAT6-dependent signaling pathway. BMC Medicine, 20(1), 148.
- 49. Jacka, F. N., O'Neil, A., Opie, R., Itsiopoulos, C., Cotton, S., Mohebbi, M., Castle, D., Dash, S., Mihalopoulos, C., Chatterton, M. L., Brazionis, L., Dean, O. M., Hodge, A. M., & Berk, M. (2017). A randomised controlled trial of dietary improvement for adults with major depression (the 'SMILES' trial). BMC Medicine, 15(1), 23.
- 50. Jayedi, A., Zeraattalab-Motlagh, S., Jabbarzadeh, B., Hosseini, Y., Jibril, A. T., Shahinfar, H., Mirrafiei, A., Hosseini, F., & Bidar, S. S. (2022). Dose-dependent effect of carbohydrate restriction for type 2 diabetes management: a systematic review and dose-response meta-analysis of randomized controlled trials. The American journal of clinical nutrition, 116(1), 40-56.
- 51. Kandimalla, R., Thirumala, V., & Reddy, P. H. (2017). Is Alzheimer's disease a Type 3 Diabetes? A critical appraisal. Biochimica et biophysica acta. Molecular basis of disease, 1863(5), 1078-1089.
- 52. Kellar, D., & Craft, S. (2020). Brain insulin resistance in Alzheimer's disease and related disorders: mechanisms and therapeutic approaches. Lancet Neurology, 19(9), 758–766.
- 53. Kelly, T., Unwin, D., & Finucane, F. (2020). Low-Carbohydrate Diets in the Management of Obesity and Type 2 Diabetes: A Review from Clinicians Using the Approach in Practice. International journal of environmental research and public health, 17(7), 2557.
- 54. Khalid, K., Apparow, S., Mushaddik, I. L., Anuar, A., Rizvi, S. A. A., & Habib, A. (2023). Effects of Ketogenic Diet on Reproductive Hormones in Women With Polycystic Ovary Syndrome. Journal of the Endocrine Society, 7(10).
- 55. Khodabakhshi, A., Akbari, M. E., Mirzaei, H. R., Mehrad-Majd, H., Kalamian, M., & Davoodi, S. H. (2020). Feasibility, Safety, and Beneficial Effects of MCT-Based



- Ketogenic Diet for Breast Cancer Treatment: A Randomized Controlled Trial Study. *Nutrition and Cancer*, 72(4), 627–634.
- 56. Khodabakhshi, A., Akbari, M. E., Mirzaei, H. R., Seyfried, T. N., Kalamian, M., & Davoodi, S. H. (2021). Effects of Ketogenic metabolic therapy on patients with breast cancer: A randomized controlled clinical trial. *Clinical Nutrition*, 40(3), 751–758.
- 57. Khodabakhshi, A., Seyfried, T. N., Kalamian, M., Beheshti, M., & Davoodi, S. H. (2020). Does a ketogenic diet have beneficial effects on quality of life, physical activity or biomarkers in patients with breast cancer: a randomized controlled clinical trial. *Nutrition Journal*, 19(1), 87.
- 58. Klement, R. J., Champ, C. E., Kämmerer, U., Koebrunner, P. S., Krage, K., Schäfer, G., Weigel, M., & Sweeney, R. A. (2020). Impact of a ketogenic diet intervention during radiotherapy on body composition: III-final results of the KETOCOMP study for breast cancer patients. *Breast cancer research*, 22(1), 94.
- 59. Krikorian R, Shidler MD, Summer SS, Sullivan PG, Duker AP, Isaacson RS, Espay AJ. (2019). Nutritional ketosis for mild cognitive impairment in Parkinson's disease: a controlled pilot trial. *Clin Park Relat Disord*. 1:41–7.
- 60. Kulkarni, N. P., Dimick, M. K., Kennedy, K. G., Axelson, D. A., Sakolsky, D. J., Diler, R. S., Hafeman, D. M., Goldstein, T. R., Monk, K. J., Liao, F., Merranko, J. A., Birmaher, B., & Goldstein, B. I. (2024). Controlled Study of Metabolic Syndrome Among Offspring of Parents With Bipolar Disorder. *The Journal of clinical psychiatry*, 85(3), 23m15058.
- 61. Lassale, C., Batty, G. D., Baghdadli, A., Jacka, F., Sánchez-Villegas, A., Kivimäki, M., & Akbaraly, T. (2019). Healthy dietary indices and risk of depressive outcomes: a systematic review and meta-analysis of observational studies. *Molecular psychiatry*, 24(7), 965–986.
- 62. Lean, M. E., Leslie, W. S., Barnes, A. C., Brosnahan, N., Thom, G., McCombie, L., Kelly, T., Irvine, K., Peters, C., Zhyzhneuskaya, S., Hollingsworth, K. G., Adamson, A. J., Sniehotta, F. F., Mathers, J. C., McIlvenna, Y., Welsh, P., McConnachie, A., McIntosh, A., Sattar, N., & Taylor, R. (2024). 5-year follow-up of the randomised Diabetes Remission Clinical Trial (DiRECT) of continued support for weight loss maintenance in the UK: an extension study. *The Lancet Diabetes & Endocrinology*, 12(4), 233–246.
- 63. Lei, L., Huang, J., Zhang, L., Hong, Y., Hui, S., & Yang, J. (2022). Effects of low-carbohydrate diets versus low-fat diets on metabolic risk factors in overweight and obese adults: A meta-analysis of randomized controlled trials. *Frontiers in nutrition*, 9, 935234.
- 64. Leitner, B. P., Siebel, S., Akingbesote, N. D., Zhang, X., & Perry, R. J. (2022). Insulin and cancer: a tangled web. *The Biochemical Journal*, 479(5), 583–607.
- 65. Levine, A., Wine, E., Assa, A., Sigall Boneh, R., Shaoul, R., Kori, M., Cohen, S., Peleg, S., Shamaly, H., On, A., Millman, P., Abramas, L., Ziv-Baran, T., Grant, S., Abitbol, G., Dunn, K. A., Bielawski, J. P., & Van Limbergen, J. (2019). Crohn's Disease Exclusion Diet Plus Partial Enteral Nutrition Induces Sustained Remission in a Randomized Controlled Trial. *Gastroenterology*, 157(2), 440–450.e8.
- 66. Lu, L., Jing, W., Qian, W., Fan, L., & Cheng, J. (2024). Association between dietary patterns and cardiovascular diseases: A review. *Current problems in cardiology*, 49(3), 102412.
- 67. Luukkonen, P. K., Dufour, S., Lyu, K., Zhang, X. M., Hakkarainen, A., Lehtimäki, T. E., Cline, G. W., Petersen, K. F., Shulman, G. I., & Yki-Järvinen, H. (2020). Effect of a ketogenic diet on hepatic steatosis and hepatic mitochondrial metabolism in nonalcoholic fatty liver disease. *PNAS*, 117(13), 7347–7354.
- 68. Marino, P., Mininni, M., Deiana, G., Marino, G., Divella, R., Bochicchio, I., Giuliano, A., Lapadula, S., Lettini, A. R., & Sanseverino, F. (2024). Healthy Lifestyle and Cancer Risk: Modifiable Risk Factors to Prevent Cancer. *Nutrients*, 16(6), 800.



- 69. McKenzie, A. L., Athinarayanan, S. J., Van Tieghem, M. R., Volk, B. M., Roberts, C. G. P., Adams, R. N., Volek, J. S., Phinney, S. D., & Hallberg, S. J. (2024). 5-Year effects of a novel continuous remote care model with carbohydrate-restricted nutrition therapy including nutritional ketosis in type 2 diabetes: An extension study. *Diabetes research and clinical practice*, 217, 111898.
- 70. Mei, S., Ding, J., Wang, K., Ni, Z., & Yu, J. (2022). Mediterranean Diet Combined With a Low-Carbohydrate Dietary Pattern in the Treatment of Overweight Polycystic Ovary Syndrome Patients. *Frontiers in Nutrition*, 9, 876620.
- 71. Narula, N., Wong, E. C. L., Dehghan, M., Mente, A., Rangarajan, S., Lanas, F., Lopez-Jaramillo, P., Rohatgi, P., Lakshmi, P. V. M., Varma, R. P., Orlandini, A., Avezum, A., Wielgosz, A., Poirier, P., Almadi, M. A., Altuntas, Y., Ng, K. K., Chifamba, J., Yeates, K., Puoane, T., ... Yusuf, S. (2021). Association of ultra-processed food intake with risk of inflammatory bowel disease: prospective cohort study. *BMJ*, 374, n1554.
- 72. Norwitz, N. G., & Soto-Mota, A. (2024). Case report: Carnivore-ketogenic diet for the treatment of inflammatory bowel disease: a case series of 10 patients. *Frontiers in Nutrition*, 11, 1467475.
- 73. O'Hearn, M., Lauren, B. N., Wong, J. B., Kim, D. D., & Mozaffarian, D. (2022). Trends and Disparities in Cardiometabolic Health Among U.S. Adults, 1999-2018. *Journal of the American College of Cardiology*, 80(2), 138–151.
- 74. Pandurevic, S., Mancini, I., Mitselman, D., Magagnoli, M., Teglia, R., Fazzeri, R., Dionese, P., Cecchetti, C., Caprio, M., Moretti, C., Sicinska, J., Agostini, A., Gazineo, D., Godino, L., Sajoux, I., Fanelli, F., Meriggiola, C. M., Pagotto, U., & Gambineri, A. (2023). Efficacy of very low-calorie ketogenic diet with the Pronokal® method in obese women with polycystic ovary syndrome: A 16-week randomized controlled trial. Endocrine Connections, 12(7), e220536.
- 75. Phillips MCL, Deprez LM, Mortimer GMN, Murtagh DKJ, McCoy S, Mylchreest R, et al. (2021). Randomized crossover trial of a modified ketogenic diet in Alzheimer's disease. *Alzheimers Res Ther.* 13:51.
- 76. Phillips MCL, Murtagh DKJ, Gilbertson LJ, Asztely FJS, Lynch CDP. (2018). Low-fat versus ketogenic diet in Parkinson's disease: a pilot randomized controlled trial. *Mov Disord*. 33:1306–14.
- 77. Pigott, H. E., Kim, T., Xu, C., Kirsch, I., & Amsterdam, J. (2023). What are the treatment remission, response and extent of improvement rates after up to four trials of antidepressant therapies in real-world depressed patients? A reanalysis of the STAR*D study's patient-level data with fidelity to the original research protocol. *BMJ Open*, 13(7), e063095.
- 78. Puchalska P. (2024). Unraveling the complex connection between ketone bodies and insulin resistance. *Acta physiologica*, 240(2), e14077.
- 79. Rinaldi, R., De Nucci, S., Castellana, F., Di Chito, M., Giannuzzi, V., Shahini, E., Zupo, R., Lampignano, L., Piazzolla, G., Triggiani, V., Cozzolongo, R., Giannelli, G., & De Pergola, G. (2023). The Effects of Eight Weeks' Very Low-Calorie Ketogenic Diet (VLCKD) on Liver Health in Subjects Affected by Overweight and Obesity. *Nutrients*, 15(4), 825.
- 80. Rock, C. L., Thomson, C. A., Sullivan, K. R., Howe, C. L., Kushi, L. H., Caan, B. J., Neuhouser, M. L., Bandera, E. V., Wang, Y., Robien, K., Basen-Engquist, K. M., Brown, J. C., Courneya, K. S., Crane, T. E., Garcia, D. O., Grant, B. L., Hamilton, K. K., Hartman, S. J., Kenfield, S. A., Martinez, M. E., ... McCullough, M. L. (2022). American Cancer Society nutrition and physical activity guideline for cancer survivors. *CA: a cancer journal for clinicians*, 72(3), 230–262.
- 81. Rogdaki, M., McCutcheon, R. A., D'Ambrosio, E., Mancini, V., Watson, C. J., Fanshawe, J. B., Carr, R., Telesia, L., Martini, M. G., Philip, A., Gilbert, B. J., Salazar-de-Pablo, G.,



- Kyriakopoulos, M., Siskind, D., Correll, C. U., Cipriani, A., Efthimiou, O., Howes, O. D., & Pillinger, T. (2024). Comparative physiological effects of antipsychotic drugs in children and young people: a network meta-analysis. The Lancet. Child & adolescent health, 8(7), 510-521.
- 82. Sautter, J. M., Henstenburg, J. A., Crafford, A. G., Rowe-Nicholls, I., Diaz, V. S., Bartholomew, K. A., Evans, J. S., Johnson, M. R., Zhou, J., & Ajeya, D. (2024). Health outcomes reported by healthcare providers and clients of a community-based medically tailored meal program. BMC nutrition, 10(1), 147.
- 83. Sethi, S., Wakeham, D., Ketter, T., Hooshmand, F., Bjornstad, J., Richards, B., Westman, E., Krauss, R. M., & Saslow, L. (2024). Ketogenic Diet Intervention on Metabolic and Psychiatric Health in Bipolar and Schizophrenia: A Pilot Trial. Psychiatry Research, 335, 115866.
- 84. Shan, Z., Li, Y., Baden, M. Y., Bhupathiraju, S. N., Wang, D. D., Sun, Q., Rexrode, K. M., Rimm, E. B., Qi, L., Willett, W. C., Manson, J. E., Qi, Q., & Hu, F. B. (2020). Association Between Healthy Eating Patterns and Risk of Cardiovascular Disease. JAMA internal medicine, 180(8), 1090-1100.
- 85. Shih, C. W., Hauser, M. E., Aronica, L., Rigdon, J., & Gardner, C. D. (2019). Changes in blood lipid concentrations associated with changes in intake of dietary saturated fat in the context of a healthy low-carbohydrate weight-loss diet: a secondary analysis of the Diet Intervention Examining The Factors Interacting with Treatment Success (DIETFITS) trial. The American journal of clinical nutrition, 109(2), 433–441.
- 86. Smith, E. C. C., Agarwal, S. M., Panganiban, K. J., Maksyutynska, K., Monteiro, J., Lee, J., Prasad, F., Ji, A., Shah, D., Cavalier, S., Prabhune, R. U., Radoncic, E., Yang, Z., Fuller, K., McCarthy, M. J., Prestwood, T. R., Ballon, J. S., Correll, C. U., Hahn, M. K., & Freyberg, Z. (2025). Antipsychotic Drugs and Dysregulated Glucose Homeostasis: A Systematic Review and Meta-Analysis. JAMA Psychiatry, e252240.
- 87. Society of Metabolic Health Practitioners. (2022). Clinical Guidelines for Therapeutic Carbohydrate Restriction. Retrieved from https://thesmhp.org/clinical-guidelines/.
- 88. Sterner Isaksson, S., Ólafsdóttir, A. F., Ivarsson, S., Imberg, H., Toft, E., Hallström, S., Rosengvist, U., Ekström, M., & Lind, M. (2023). The effect of carbohydrate intake on glycaemic control in individuals with type 1 diabetes: a randomised, open-label, crossover trial. The Lancet regional health. Europe, 37, 100799.
- 89. Taylor MK, Sullivan DK, Mahnken JD, Burns JM, Swerdlow RH. (2018). Feasibility and efficacy data from a ketogenic diet intervention in Alzheimer's disease. Alzheimers Dement. 4:28-36.
- 90. Teasdale, S. B., Machaczek, K. K., Marx, W., Eaton, M., Chapman, J., Milton, A., Oyeyemi, A. L., Pelupessy, D. C., Schuch, F. B., Gatera, G., Ahmed, H. U., Diatri, H., Jidda, I. M., Gutiérrez-Peláez, M., Elshazly, M., Fugu, M. A., Grinko, N., Indu, P. S., Oo, S. S., Balasubramanian, S., ... Rosenbaum, S. (2025). Implementing lifestyle interventions in mental health care: third report of the Lancet Psychiatry Physical Health Commission. The Lancet Psychiatry, 12(9), 700-722.
- 91. Tosi, F., Bonora, E., & Moghetti, P. (2017). Insulin resistance in a large cohort of women with polycystic ovary syndrome: a comparison between euglycaemic-hyperinsulinaemic clamp and surrogate indexes. Human reproduction, 32(12), 2515-2521.
- 92. Unwin, D., Delon, C., Unwin, J., Tobin, S., & Taylor, R. (2023). What predicts drug-free type 2 diabetes remission? Insights from an 8-year general practice service evaluation of a lower carbohydrate diet with weight loss. BMJ nutrition, prevention & health, 6(1), 46-55.
- 93. van Soest, A. P., Beers, S., van de Rest, O., & de Groot, L. C. (2024). The Mediterranean-Dietary Approaches to Stop Hypertension Intervention for



- Neurodegenerative Delay (MIND) Diet for the Aging Brain: A Systematic Review. Advances in nutrition, 15(3), 100184.
- 94. Vanitallie, T. B., Nonas, C., Di Rocco, A., Boyar, K., Hyams, K., & Heymsfield, S. B. (2005). Treatment of Parkinson disease with diet-induced hyperketonemia: a feasibility study. Neurology, 64(4), 728-730.
- 95. Vernieri, C., Fucà, G., Ligorio, F., Huber, V., Vingiani, A., Iannelli, F., Raimondi, A., Rinchai, D., Frigè, G., Belfiore, A., Lalli, L., Chiodoni, C., Cancila, V., Zanardi, F., Ajazi, A., Cortellino, S., Vallacchi, V., Squarcina, P., Cova, A., Pesce, S., ... de Braud, F. (2022). Fasting-Mimicking Diet Is Safe and Reshapes Metabolism and Antitumor Immunity in Patients with Cancer. Cancer discovery, 12(1), 90–107.
- 96. Vilar-Gomez, E., Athinarayanan, S. J., Adams, R. N., Hallberg, S. J., Bhanpuri, N. H., McKenzie, A. L., Campbell, W. W., McCarter, J. P., Phinney, S. D., Volek, J. S., & Chalasani, N. (2019). Post hoc analyses of surrogate markers of non-alcoholic fatty liver disease (NAFLD) and liver fibrosis in patients with type 2 diabetes in a digitally supported continuous care intervention; an open-label, non-randomised controlled study. BMJ Open, 9(2), e023597.
- 97. Vilar-Gomez, E., Martinez-Perez, Y., Calzadilla-Bertot, L., Torres-Gonzalez, A., Gra-Oramas, B., Gonzalez-Fabian, L., Friedman, S. L., Diago, M., & Romero-Gomez, M. (2015). Weight Loss Through Lifestyle Modification Significantly Reduces Features of Nonalcoholic Steatohepatitis. *Gastroenterology*, 149(2), 367–e15.
- 98. Virta Health. (2021). Virta Health's Diabetes Reversal Treatment Drives Savings of More Than \$10k Per Patient Over Two Years, New Analysis Shows. Retrieved from https://www.virtahealth.com/press/virta-healths-diabetes-reversal-treatment-drives-savin gs-of-more-than-10k-per-patient-over-two-years-new-analysis-shows.
- 99. Volek, J. S., Yancy, W. S., Jr, Gower, B. A., Phinney, S. D., Slavin, J., Koutnik, A. P., Hurn, M., Spinner, J., Cucuzzella, M., & Hecht, F. M. (2024). Expert consensus on nutrition and lower-carbohydrate diets: An evidence- and equity-based approach to dietary guidance. Frontiers in Nutrition, 11, 1376098.
- Walker, E. R., McGee, R. E., & Druss, B. G. (2015). Mortality in mental disorders and global disease burden implications: a systematic review and meta-analysis. JAMA Psychiatry, 72(4), 334-341.
- Wang, S., Toy, M., Hang Pham, T. T., & So, S. (2020). Causes and trends in liver disease and hepatocellular carcinoma among men and women who received liver transplants in the U.S., 2010-2019. PloS one, 15(9), e0239393.
- Wei, X., Zou, H., Zhang, T., Huo, Y., Yang, J., Wang, Z., Li, Y., & Zhao, J. (2024). Gestational Diabetes Mellitus: What Can Medical Nutrition Therapy Do?. Nutrients, 16(8), 1217.
- Wekker, V., van Dammen, L., Koning, A., Heida, K. Y., Painter, R. C., Limpens, J., Laven, J. S. E., Roeters van Lennep, J. E., Roseboom, T. J., & Hoek, A. (2020). Long-term cardiometabolic disease risk in women with PCOS: a systematic review and meta-analysis. Human reproduction update, 26(6), 942–960.
- World Health Organization (WHO). (2018). Management of physical health conditions in adults with severe mental disorders (WHO Guidelines). https://www.who.int/publications/i/item/978-92-4-155038-3.
- WHO. (2020). HEARTS: Technical package for cardiovascular disease management 105. in primary health care: Risk-based CVD management. https://www.who.int/publications/i/item/9789240001367.
- Younossi, Z. M., Koenig, A. B., Abdelatif, D., Fazel, Y., Henry, L., & Wymer, M. (2016). Global epidemiology of nonalcoholic fatty liver disease: Meta-analytic assessment of prevalence, incidence, and outcomes. Hepatology, 64(1), 73-84.



- 107. Zhang, R., Han, S., Chen, G. C., Li, Z. N., Silva-Zolezzi, I., Parés, G. V., Wang, Y., & Qin, L. Q. (2018). Effects of low-glycemic-index diets in pregnancy on maternal and newborn outcomes in pregnant women: a meta-analysis of randomized controlled trials. *European journal of nutrition*, 57(1), 167–177.
- 108. Zhang, Y., He, T., Hu, Y., & Gao, C. (2024). Low-Carbohydrate Diet is More Helpful for Weight Loss Than Low-Fat Diet in Adolescents with Overweight and Obesity: A Systematic Review and Meta-Analysis. *Diabetes, metabolic syndrome and obesity:* targets and therapy, 17, 2997–3007.
- 109. Zheng, Q., Gao, X., Ruan, X., Chen, S., Pan, X., Wang, R., Zhao, L., Yu, Z., Li, D., & Zhai, J. (2025). Are low carbohydrate diet interventions beneficial for metabolic syndrome and its components? A systematic review and meta-analysis of randomized controlled trials. *International journal of obesity*, 49(7), 1252–1263.