

# Symposium for Metabolic Health 2024: Conference report and summary of highlights



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## Introduction

The 2024 Symposium for Metabolic Health, hosted by LowCarbUSA® and co-sponsored by the Society of Metabolic Health Practitioners (SMHP), focused on addressing metabolic health and its connection to chronic conditions through a low-carbohydrate and/or ketogenic lifestyle. Since its founding in 2015, LowCarbUSA® has aimed to promote the application of therapeutic carbohydrate reduction (TCR) to manage a wide range of metabolic and general health conditions. The organisation's initiatives include scientific conferences, educational outreach, online coaching and evidence-based resources for healthcare professionals and the public. Thus, the purpose of this report is to explain what key findings and treatment strategies were presented at the conference regarding the application of a low-carbohydrate/ketogenic lifestyle to improve metabolic and mental health outcomes.

The Symposium, a dynamic platform for healthcare providers, nutritionists, fitness experts and researchers, is dedicated to exploring cutting-edge treatments and strategies for metabolic health. This year's Symposium placed a significant emphasis on the interplay between metabolic health and mental health, with presentations honing in on chronic conditions such as type 2 diabetes (T2D), cardiovascular disease (CVD) and neurodegenerative disorders like Alzheimer's and Parkinson's. With only 12% of the United States (US) population considered metabolically healthy,<sup>1</sup> these conditions are a growing concern, contributing to the \$4.5 trillion in healthcare expenditures in the US in 2022 alone.<sup>2</sup> The goal of the Symposium was to present current research and potential treatment strategies aimed at reducing the rising rates of morbidity and mortality related to metabolic disorders. This report reviews key presentations and research findings from the 2024 Symposium for Metabolic Health, highlighting new directions for clinical practice and future research.

## Conference overview and objectives

The 4-day conference featured at least six formal presentations per day, along with two panel discussions where attendees could engage with presenters. Two evenings were dedicated to scientific poster presentations reviewing current research (see Table 1). Nightly SMHP informal dinners fostered discussions on metabolic health and treatment applications, with patients and providers seated together. This unique, patient-centred approach emphasised collaboration between healthcare professionals and patients, setting the event apart from typical professional conferences.

## Mental health

The Symposium dedicated a significant portion of the presentations to exploring the intersection of metabolic and mental health. Participants were educated on the use of TCR as an intervention for addressing mental health conditions, including bipolar disorder, schizophrenia, depression and anxiety. Presentations highlighted the growing body of evidence supporting the connection between metabolic dysfunction and mental health disorders, emphasising how managing insulin resistance and inflammation through TCR can mitigate symptoms and improve overall mental well-being. This focus on mental health reflects the increasing recognition of how metabolic interventions can serve as valuable treatment strategies for both metabolic and psychological conditions.

**Dates:** Received: 08 Sept. 2024 | Accepted: 13 Oct. 2024 | Published: 20 Nov. 2024

**How to cite this article:** Tidman MM, White DR, White TA. Symposium for Metabolic Health 2024: Conference report and summary of highlights. *J. metab. health.* 2024;7(1), a104. <https://doi.org/10.4102/jmh.v7i1.104>

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**TABLE 1:** Representation of presenters and topics discussed as the Symposium.

Presenter	Topic or Title
<b>Formal presentations</b>	
<b>Day 1</b>	
Georgia Ede, MD	Metabolic psychiatry
Drew Decker	The effects of ketogenic interventions in college students with major depression
Nicole Laurent, LMHC	Building a ketogenic support system-utilising professional networks for mental health treatment
Bret Scher, MD	Live patient interview: Ketogenic diet and bipolar disorder
Guido Frank, MD	Therapeutic ketogenic diet to treat anorexia nervosa
Lori Calabrese, MD	Getting rid of depression and anxiety with a ketogenic diet
<b>Day 2</b>	
Tamzyn Murphy	The impact of a ketogenic diet on psychiatric comorbidities and symptoms in a paediatric autism spectrum disorder case.
Dimitris Tsoukalas, MD	Metabolomic analysis: A crucial tool for identifying micronutrient deficiencies and metabolic dysfunction in autoimmune and chronic diseases.
Brian Lenzkes, MD	Strongholds and footholds: Applying the science to real life
Tony Hampton, MD	Potential targets of reduced carb therapies
Andrew Koutnik, PhD	Type 1 diabetes: Nutrition and cardiometabolic health
Ben Bocchicchio, PhD	High-intensity exercise: A review of the mechanistic up-regulation of fat oxidation processes
Gary Taubes	Trapped fat: Obesity is a disorder in metabolic fuel partitioning
<b>Day 3</b>	
Anthony Chaffee, MD	Ketogenic carnivore athletes: The myth of 'you have to have carbs to perform optimally'
Roshani Sanghani, MD	Diabetes distress, motivational interviewing and behaviour change in diabetes
Dominic D'Agostino, PhD	Metabolic interventions for cancer treatment and prevention
Matthew Phillips, MD	FRACP: Neurodegenerative disorders and mitohormesis
Jay Wortman, MD	Meat science: Agenda or integrity?
Michael Eades, MD	Low-carb and the multiply hypotheses of obesity
<b>Day 4</b>	
Eric Berg, MD	Magnesium: The vital mineral for optimal health and disease prevention
Robert Cywes, MD	Carnivore diet: A clinical reality check
Paul Mason, MD	Why you should be cynical of published science
Adrian Soto-Mota, PhD	When can we trust a biomedical study?
Dave Feldman	New insights from the lean mass hyper-responder study
Dr Soto-Mota, Dr Sanghani, Dr Chaffee and Dr Phillips	Panel discussion
<b>Poster presentations</b>	
Kamepalli, R.	Low carb high protein nutritional approach in diabetic wound healing: Real world outcomes with platform-based tracking and high-touch patient empowering techniques
Fox, S. & Cywes, R.	Three months to type 2 diabetes remission with a therapeutic carbohydrate restriction plan
Tidman, M.	The SMHP research academy
Tidman, M.	The ketogenic diet and metsyn in parkinson's disease symptoms, biomarkers, depression and anxiety: A case study
Zinn, C.	Type 2 diabetes (T2D) in primary care in new zealand: Patient and health practitioner experiences
Hossfeld, J & Armstrong, C	Healing institutions: Health institutions, heal minds, heal communities
Ballerstedt, P	A grassroots campaign: Engaging the cooperative extension service to regenerate public health
Greenow, D & Ernst, J	Improving adherence to ketogenic diets with biofeedback and a remote care platform
Greenow, D. & Ernst, J	The glucose-ketone index: A promising biomarker for management of neurological diseases
Ari, C & D'Agostino, D.	Review of exogenous ketone supplements with enantiomer and concentration-dependent effects
Ari, C & D'Agostino, D.	Ketone supplementation using R-, S-Sodium-3-hydroxybutyrate induces neuroregeneration

MD, medical doctor; PhD, Doctor of Philosophy; LMHC, licensed mental health counselor.

## Obesity management

Obesity management was another key focus of the Symposium, with participants reviewing the latest research on the role of TCR in treating obesity. Presentations discussed emerging metabolic treatment strategies aimed at sustainable weight loss and long-term obesity management, emphasising the importance of reducing carbohydrate intake to stabilise blood glucose levels and reduce insulin resistance. Evidence was presented on how TCR can reduce the risk of related chronic conditions such as T2D, CVD and non-alcoholic fatty liver disease (NAFLD). These discussions showcased the effectiveness of metabolic therapies in addressing the global

obesity crisis and highlighted their potential to reduce obesity-related healthcare costs.

## Sustainability

The Symposium's central themes were sustainability in food production and the influence of global industrial policies on health. Participants attended presentations on the sustainability of meat and animal-based foods, exploring industrial food production's environmental and economic impacts. The discussions extended to how international policies shape food systems, affecting the availability of nutritionally sound options and the prevalence of metabolic

health conditions. The Symposium encouraged a deeper understanding of how sustainable food practices can align with metabolic health goals, promoting healthier dietary patterns while addressing global food production challenges.

## Society of metabolic health practitioners

The Symposium also marked essential advancements for the SMHP, particularly with the launch of two major initiatives. Participants witnessed the introduction of the SMHP Research Academy, an initiative designed to support members in conducting, developing and publishing metabolic health research. This new resource is expected to enhance research efforts and advance knowledge in the field. In addition, the SMHP introduced its new *Journal of Metabolic Health* (JMHP), with journal staff present at the Symposium to answer questions about manuscript submissions and discuss potential future publications. These initiatives demonstrate SMHP's commitment to advancing the science of metabolic health and fostering a collaborative research community.

## Networking and collaboration

The 2024 Symposium for Metabolic Health was unique in its focus on current research efforts to support clinical applications for practitioners bridging the gap between research and practice, a concept rarely experienced at professional scientific conferences. Attendees included nutritionists, researchers, academics, medical providers, sports and fitness coaches and the lay public. The demographics of attendees were unique in their scope and variety, and the Symposium provided plenty of valuable information for members of the lay public wishing to improve their metabolic health with modifications to their lifestyle. In addition, the presenters for the Symposium were available for questions from the lay public attendees, allowing for increased access to educational information to enable the lay public to learn about methods to address their health concerns.

During the poster presentations, attendees networked with researchers and could review current research and ask questions or provide opportunities for collaboration on possible future research directions. Providers were encouraged to ask practical application questions about addressing specific symptoms or chronic conditions using metabolic health methods in their practice settings. Several new project ideas and collaborations emerged from the poster presentations, including a research project on metabolic syndrome and osteoporosis, a quality of life study for patients with type 1 diabetes, and the potential for an intra-provider scoping review of research literature on type 1 diabetes.

The introduction of the new SMHP Research Academy further stimulated numerous research opportunities, with practitioners both nationally and internationally proposing new projects. These included potential international mentorships between established researchers in metabolic health and providers new to research. Once launched, the

SMHP Research Academy will offer training modules on conducting clinical research, a journal club for reviewing literature, and access to the newly developed SMHP REDCap database management platform. This platform will assist members with collecting, storing, analysing and possibly creating a collective data repository accessible for secondary data analysis and further research.

## Event outcomes and results

Approximately 300 attendees participated in person at the 2024 Symposium for Metabolic Health, while an additional 150 joined virtually. In addition to the formal presentations, attendees had the opportunity to explore current and ongoing scientific research through two Scientific Poster sessions. The Expo area offered networking opportunities with vendors showcasing products and services that support metabolic health through nutrition, testing, analysis and lifestyle interventions. Attendees also had the chance to engage with experts in the field, ask questions and gain resources applicable to their practice, research or personal health and fitness. They also reported benefits to their practice settings because of the Expo presentations.

A standout feature of the Symposium was the accessibility of professionals and researchers, fostering rich dialogue and learning. Additionally, the Symposium offered continuing education units (CEUs) for providers, practitioners, nutritionists and trainers, supporting licensure renewals. Post-event surveys reflected high satisfaction levels, with positive feedback on new concepts, presentation quality, networking opportunities and the value of the poster presentations (see Table 2). Suggestions for future events included a stronger focus on chronic conditions, such as neurodegenerative disorders, and schedule adjustments to allow more time for networking.

## Conclusion and recommendations for future events

The 2024 Symposium for Metabolic Health in San Diego, California, was a uniquely designed and successful collaborative event. Approximately 450 practitioners from around the world attended 4 days of research presentations and expert panel discussions, both in person and virtually. This year's event placed a particular focus on metabolic applications in mental health, dedicating an entire day to the use of TCR for treating conditions like bipolar disorder and depression. The following 3 days featured various presentations on current research and key issues in metabolic health.

The unique structure of this conference provided ample networking opportunities. In addition to professional poster sessions, nightly informal dinners allowed for increased interaction between providers from various treatment settings. The event also saw the introduction of the new SMHP Research Academy, a one-of-a-kind research collaboration

**TABLE 2:** Results of satisfaction survey.

Question	Response positive (%)	Response negative (%)	Comments
How would you rate the overall Symposium?	93	2	Many attendees found the Symposium highly engaging, with special appreciation for the diverse presentations and practical applications of metabolic therapy.
The content of the conference was helpful to me in practice.	97	3	Attendees highlighted the practical utility of the presentations, especially in areas like metabolic psychiatry and its applications in clinical settings.
The content of the conference was relevant to my practice.	90	4	Most attendees found the topics highly relevant, particularly those focused on mental health and nutritional science.
The conference's content was presented at an appropriate level for my learning.	92	8	Attendees appreciated the balance between advanced scientific data and practical clinical advice.
Attendees who applied for CMEs for conference attendance	94	6	A majority found the CME opportunities valuable and applicable to their continuing education.

CME, continuing medication education.

and mentorship programme for SMHP members. Each evening concluded with wine-tasting receptions, creating a more relaxed environment for researchers and providers to engage in informal networking. Plans for future Symposiums include expanding poster presentations, introducing research roundtables where providers can connect with researchers to discuss disease-specific studies and continuing the first-day focus on a specific topic to highlight the latest research on a particular disease or disorder.

## Acknowledgements

The information referred to in this article was presented at the Symposium for Metabolic Health, San Diego, California, 15–18 August 2024.

## Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

## Authors' contributions

M.M.T. was responsible for conceptualisation, methodology investigation, writing, project administration, resources, editing, supervision. D.R.W. was responsible for methodology, writing, and data. T.A.W. was responsible for writing and editing.

## Ethical considerations

This article followed all ethical standards for a conference report.

## Funding information

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

## Data availability

Data sharing is not applicable to this article as no new data were created or analysed in this study.

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