

## Metabolic Health Symposium: Catalyzing Science to Action for Transformation and Resilience Across the Lifespan

*Recorded Live on Thursday, June 9 – Saturday, June 11, 2022*

*On-Demand Recording – Planned Agenda*  
*(Times listed are for reference only for on-demand access)*

### Thursday, June 9<sup>th</sup> – Day One: Protect the Liver

7:45 a.m. **Welcome & Opening Remarks**  
Uma Pisharody, M.D., *Course Director*

#### *Session I: The Problems*

- 8 a.m. *Moderator: Uma Pisharody, M.D.*  
**Keynote: The BIG Picture: NAFLD – Debunking Myths, Liver Toxins, Fructose & Other Toxins**  
Robert Lustig, M.D., MSL
- Recognize the importance of liver fat in chronic disease
  - Describe the role of mitochondria in liver fat
  - Discuss the role of fructose in mitochondrial dysfunction
- 9:15 a.m. **The Impact of Nutrition and Inflammation and Chronic Illness**  
Monica Aggarwal, M.D.
- Discuss the state of health in 2021
  - Recognize the role of inflammation in triggering illness
  - Discuss how we can use our lifestyle to decrease inflammation
- 10 a.m. **Featured Topic Lectures & Expert Dialogue Panels – Listed below**
- 10 a.m. **Sugars and the Liver: A Not-So-Sweet Story**  
Miriam Vos, M.D.
- Discuss the role of the liver in sugar and lipid metabolism
  - Review NAFLD and its role in pediatric health
- 10:30 a.m. **The Modern Diet in the First Thousand Days- A Recipe for Disaster?**  
Thomas Flass, M.D., MS
- Recognize how early life environment influences future risk of metabolic disease
  - Review the importance of a healthy microbiome in metabolic health
  - Clarify the role maternal and childhood diet play in shaping future health outcomes
- 11 a.m. **Implicating Added Sugar in the Development of Cardiometabolic Disease: The Strong, the Not so Strong, and the Missing Research Evidence**  
Kimber Stanhope, Ph.D., RD
- Identify the direct and indirect pathways by which added sugar consumption may contribute to the development of cardiometabolic disease
  - Discuss the relative strength of the research evidence that implicates the direct and the indirect pathway in the development of cardiometabolic disease
  - Recognize the relative strength of the research evidence that implicates fructose, sucrose, HFCS, sugar-sweetened beverage, and sugar-sweetened solid food in the development of cardiometabolic disease

11:30 a.m. **Combined Dialogue Q&A Panel**

*Panelists:*

- Robert Lustig M.D., MSL
- Monica Aggarwal, M.D. (*virtual*)
- Miriam Vos, M.D.
- Thomas Flass M.D.
- Kimber Stanhope, Ph.D., RD

- Discuss the role of added sugars in metabolic health syndromes and patient diets

11:45 a.m. Lunch Break – Courtyard Ballroom Foyer

Noon **Lunch & Learn Demonstration - Healthy School Meals for All and Why it's so Important for Our Children's Future**

Chef Ann Cooper, CEC

- Review USDA Guidelines for K12 School Meals
- Discuss the importance of scratch cooking to the health of our Nation's children
- Recognize that healthy scratch cooked school meals are possible in every school district in our country

*Breakouts*

1:05 p.m. **Breakout Options (Tracks: [Pediatrics](#), [Policy & Advocacy](#), [Specialty Topics](#)):**

- **Feeding Infants and Children: NAFLD (nonalcoholic fatty liver disease) Epidemic and Opportunity**

Miriam Vos, M.D. and Thomas Flass, M.D., MS

*Moderators: Leslie Lee, RD and Sherri Zorn, M.D.*

- Review the global NAFLD data
- Understand the pathophysiology of NAFLD
- Understand role of diet in NAFLD

- **Evidenced Based Hydration for Sports Medicine (*Live, Virtual Presentation*)**

Tim Noakes, M.D., DSc, PhD (hc), MBChB, OMS and Adam C. Cady, PA-C, NHS, ATC, CSCS

*Moderators: Wolfram Alderson, MS and Kristen Shane, RN, BSN*

- Make evidenced based recommendations regarding appropriate fluid replacement.
- Recognize literature that is confounded within the space of hydration.
- Recommend a general approach/plan for fluid replacement in relation to peak performance.
- Discuss how the hydration guidelines were developed over the past 50 years and the effects of these guidelines on patient health
- Describe evidence-based hydration guidelines

**Oral Health and General Health: An Evolutionary Perspective**

Kevin Boyd, DDS

*Moderators: Nicole Roehrig, MSN and Elizabeth Meade, M.D.*

- Explain that optimal oral health consists not only of freedom from tooth decay and gum disease, but also requires well developed hard and soft tissues of the intimately interconnected craniofacial and respiratory complexes (CFRC).
- Discuss how oral health in early childhood (under 72 months) is conducive to optimizing not only general health and quality of life, but also increasing lifespan and health span potential.

*Session II: The Solutions – Bias to Action: Moderator: Arti Chandra, M.D.*

2:15 p.m.

**Dental and Hepatic Decay: The Fiberless-Carbohydrate Connection**

Kevin Boyd, DDS

- Review what most commercially-processed foods actually contain, such as unhealthy amounts of fiberless-carbohydrates (f-CHO's);
- Describe how dietary f-CHO's are readily converted to dangerous hepatic fat and also are fermented by oral biofilms to form disease-producing dental plaque acids
- Discuss childhood risk factor's for development of obstructive sleep apnea (OSA) such as unhealthy overweight and obesity
- Recognize how unresolved OSA in childhood often leads to cardiovascular disease in adolescence and adulthood

2:55 p.m.

**The Power of the Plate: The Soil x Human Health Connection**

Jeff Tkach, BS

- Recognize (through grounded science and data) the inextricable link between soil health and human health and how this connection impacts the health of patients in a clinical setting.
- Utilize Rodale Institute's groundbreaking research to more deeply understand the challenges of our nation's food and farming systems, and how they impact human health outcomes.
- Develop clear strategies for making dietary and lifestyle enhancements by leveraging non-toxic, organic food.
- Connect Soil Health with Human Health: An Introduction to Regenerative Organic Agriculture
- Educate the Medical Community and Patients on the concept of Soil as Medicine

3:35 p.m.

**Dialogue Panel: Changing Health from the Ground Up**

Chef Ann Cooper, CEC and Kevin Boyd, DDS

- Discuss actions that health care providers can take to help address our nation's food and farming systems

4:20 p.m.

**Closing Remarks and Bias to Action Summary**

Arti Chandra, M.D.

4:35 p.m.

Adjourn

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### Friday, June 10<sup>th</sup> – Day Two: Feed the Gut

7:45 a.m. **Welcome & Opening Remarks**  
Leslie Lee, RD

#### *Session I: The Problems*

8 a.m. *Moderator: Leslie Lee, RD*  
**Keynote: The Carbohydrate-Insulin Model: Addressing Biological Drivers of Obesity**  
David Ludwig, M.D., Ph.D.

- Describe the physiological adaptations to calorie restriction on a conventional low-fat diet
- Specify the causal direction relating energy balance to weight gain in the Energy Balance Model
- Discuss the hormonal mechanisms relating dietary composition to weight gain in the Carbohydrate-Insulin Model

9:15 a.m. **Shaping Our Dynamic Microbiomes For Lifelong Health**  
Robert Lustig, M.D. and Susan Maples, DDS

- Review how chronic conditions are linked to microbiomes
- Discuss how diet has an effect on our microbiomes.

#### 10:15 a.m. **Featured Topic Lectures & Dialogue Panels**

10:15 a.m. **Diabetes Detection in the Mouth**  
Susan Maples, DDS

- Discuss the Bi-directional relationship between oral disease and T2 Diabetes
- Identify oral disease risk factors and oral disease detection strategies
- Build a collaborative interdisciplinary approach to support glycemic control and periodontal stability

10:45 a.m. **Feed 'em, Bleed 'em & Poop 'em: Microbiome Analyses in Nutrition Intervention Trials**  
Christopher Gardner, Ph.D.

- Identify opportunities and challenges of incorporating microbiome analyses in human nutrition intervention trials
- Explain the design and results of the 2021 Fiber vs. Fermented Food study published by Gardner and Sonnenburg

11:15 a.m. **Combined Dialogue and Q&A Panel**  
*Panelists*

- David Ludwig, M.D., Ph.D.
  - Rob Knight, Ph.D. (*virtual*)
  - Susan Maples, DDS
  - Christopher Gardner, Ph.D.
- Review the effects of diet on oral health and microbiome and discuss evidence-based recommendations health care providers can make to patients to improve oral health and their microbiome

- Noon **Lunch & Learn Demonstration - How Cooking Can Help us Love the Food that will Love us Back for a Lifetime**  
 Maya Adam, M.D. and Christopher Gardner, Ph.D. (moderating)
- Define a set of basic cooking principles that will help patients support healthy, daily cooking
  - Provide patients with the knowledge to build a balanced meal using readily available *ingredients*

*Breakouts*

- 1:05 p.m. **Breakout Options (Tracks: **Pediatrics**, **Policy & Advocacy**, **Specialty Topics**):**

- **Kids in the Kitchen: Rebuilding our Relationship with Food**  
 Maya Adam, M.D.  
*Moderators: Uma Pisharody, M.D. and Kristen Shane, RN, BSN*
  - Explore the health challenges posed by our food environment and how to discuss these with kids,
  - Develop strategies for raising kids with high "food literacy",
  - Transform the kitchen into a hub for celebration, togetherness and good health
- **Food Policy**  
 Nina Teicholz, MPhil  
*Moderators: Elizabeth Meade, M.D. and Nicole Roehrig, MSN*
  - Discuss why official guidance on nutrition may not reflect the most recent science
  - Review the history of nutrition recommendations in the U.S.,
  - Recognize something about the politics and interests that impact food policy
- **The Metabolic Matrix - Food Data Science Behind the Vail**  
 Andreas Kornstadt, Ph.D.  
*Moderators: Wolfram Alderson, MS, and Roberta Ruggiero*
  - Describe what food data science is and why it matters to health care professionals
  - Shift from impulse buying to selecting foods based on science-based criteria
  - Discuss a recommendation engine and how you and your patients can use this tool

*Session II: The Solutions – Bias to Action*

*Moderator: Wolfram Alderson, MS*

- 2:15 p.m. **Lobbying For Change**  
 Vicki Alexander M.D.
- Review the role of health care providers on food policy decisions
  - Discuss actions health care providers can take to improve food policies in their community

- 2:40 p.m. **Ultra-processed Foods and Metabolical Health: Evidence and Policy Implications**  
 Carlos Monteiro, M.D, Ph.D.
- Define ultra-processed foods and to know the evidence that link their intake to metabolical health
  - Identify policy actions with greater potential to reduce the consumption of ultra-processed foods.

- 3:10 p.m. **Q&A Discussion**  
 Carlos Monteiro, M.D, Ph.D. and Vicki Alexander, M.D.
- Discuss and review the changes and policy actions health care providers can take to make a difference in their patient's health and community

3:30 p.m.

**Lessons from Advocacy in Improving Public Health Policy**

Aseem Malhotra, M.D.

- Recognize how adopting the principles of evidence-based medicine will improve patient outcomes
- Discuss how these principles can be applied to public health policy
- Learn and use strategies to achieve policy changes that will improve public health

**Closing Remarks & Bias to Action Summary**

Wolfram Alderson, MS

Adjourn

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### Saturday, June 11 – Day Three: Support the Brain

7:45 a.m. PT **Welcome & Opening Remarks**  
Wolfram Alderson, MS

*Session I: The Problems - Moderator: Wolfram Alderson, MS*

8 a.m. **Keynote: Stress, Sugar, and Compulsive Eating: Mechanisms and Interventions**  
Elissa Epel, Ph.D.

- List the behavioral and biological mediators that link stress and obesity.
- Describe the relationships between chronic stress, compulsive eating, and abdominal adiposity.
- Explain how mindful eating may impact metabolism, such as insulin and glucose levels.

9:15 a.m. **Stone Age Body, Space Age Diet: Diet, Metabolism and Mental Health**  
Ann Marie Childers, M.D., FAPA

- Review the relationship between diet and mental wellbeing
- Recognize metabolic contributors to mental states

10 a.m. **Featured Topic Lectures & Dialogue Panels**

10 a.m. **The Role of Nutrition in Neurodevelopment and ADHD**  
Rachel Gow, Ph.D.

- Review the role of nutrition in neurodevelopment of children
- Discuss how ADHD and other behavioral conditions can affect or be affected by nutrition and diet
- Implement nutrition and diet changes for children to improve neurological development

10:30 a.m. **The Mental Health Legacy of Tobacco/Sugar Marketing Tactics**  
Joan Ifland, Ph.D., MBA

- Explain to patients how the tobacco industry spread processed food addiction by marketing sugary drinks to children.
- Educate patients about the impact of addictive processed food marketing on mental health.
- Use motivational interviewing to help patients decide to undertake recovery from processed food addiction.

11 a.m. **Combined Q&A Panel**

*Panelists:*

Ann Marie Childers, M.D., FAPA; Rachel Gow, Ph.D.; and  
Joan Ifland, Ph.D., MBA

- Review the influence of mental health on patient health and metabolic disease

- 11:45 a.m. **Lunch & Learn Demonstration: It's a No-Brainer: Quick and Delicious Food You, Your Patients, and Their Families Will Love!**  
Cindy Thompson, MS, EMT-P, MVLCE
- Make quick and delicious whole food, plant-based meals
  - Provide their patients with delicious and healthy plant-based meals
  - Obtain more healthy recipe resources to provide to patients

*Breakouts*

- 12:50 p.m. **Breakout Options (Tracks: **Pediatrics**, **Policy & Advocacy**, **Specialty Topics**):**
- **Child Psychology: Role of Nutrition in Neurodevelopment and ADHD**  
Rachael Gow, Ph.D.  
*Moderators: Elizabeth Meade, M.D. and Sherri Zorn, M.D.*
    - Discuss nutrition and diet can affect certain behaviors and psychological or neurological conditions in children
    - Recognize how nutrition influences cognitive function, behavior and mood
    - Discuss the gut-brain connection
    - Review recommendations providers can make to help parents and children manage nutrition effectively to improve their patient's/childrens brain and overall health
  - **Identifying and Correcting the Specific Neurotransmitter Deficits that Generate Addictive Cravings for Toxic Food**  
Julia Ross, MA, NNTS  
*Moderators: Leslie Lee, RD, and Roberta Ruggiero*
    - Identify neurotransmitter deficits that can cause addictive cravings
    - Manage these neurotransmitter deficits to assist patients in overcoming addictive food cravings for toxic foods.
  - **COVID 19's Impact on Blood Glucose Regulation**  
Keith Berkowitz, M.D., MBA  
*Moderator: Uma Pisharody, M.D. and Wolfram Alderson, MS*
    - Recognize the impact on covid 19 on blood glucose
    - Identify individuals at risk for blood glucose dysregulation
    - Use strategies to improve blood glucose control post covid 19

*Session II: The Solutions – Bias to Action*

*Moderator: Nicole Roehrig, MSN*

- 2 p.m. **Nutrition Association with Cognitive and Motor Outcomes in Older Adults**  
Puja Agarwal, Ph.D.
- Detail the importance of identifying diet-based approaches to prevent cognitive and motor decline in the aging population and current scientific evidence
  - Describe the components of the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) Diet
  - Discuss research indicating the role of various nutrients and foods for neurodegenerative outcomes, mainly Alzheimer's and Parkinson's disease risk in older adults

- 2:30 p.m. **Prevention and Treatment of Diseases through Research: Metabolic-based Strategies for Targeting Epilepsy, Neurodegenerative Diseases, and Cancer**  
Dominic D'Agostino, Ph.D.
- Discuss how nutritional ketosis changes metabolic physiology, metabolic biomarkers and systemic health
  - Review of published studies implementing nutritional ketosis in pre-clinical animal model systems and an overview of current human clinical trials and applications
  - Describe the implementation approaches for nutritional ketosis, including the most important biomarkers to measure and track over time



3 p.m.

**Discussion Panel and Q&A – Implementation of Ideas into Action**

Puja Agarwal, Ph.D., and Dominic D'Agostino, Ph.D.

- Discuss the best approach for starting a ketogenic diet, including macronutrient tracking
- Review the optimal range of ketones for lifestyle vs disease management
- Discuss potential side effects of the ketogenic diet
- Explore the components of the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) Diet

3:30 p.m.

**Unconditional love: The Essential Nutrient**

Julia Mossbridge, BA, MA, Ph.D.

- Discuss what is being discovered about unconditional love as a self-transcendent experience
- Guide yourselves and others into an emotional place in which accessing unconditional love is made easier
- Recognize how unconditional love supports positive changes in health and wellbeing both for health care professionals and patients

4 p.m.

**Closing Remarks and Bias to Action Summary**

Nicole Roehrig, MSN

4:15 p.m.

Adjourn

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### **Pre-Recorded Content – An Introduction to Metabolic Health**

**A Discovery that Reframes the Whole of Global Healthcare in the 21st Century** - Jeffrey Bland, Ph.D., FACN, FACB (60 minutes)

- Recognize patient health as a whole system
- Describe the clinical presentation of long term illness
- Review the emerging mechanistic alterations in the immune system
- Discuss the interconnection of People, Plants, and the Planet

**Mindfulness Meditation**– Julia Mossbridge. BA, MA, Ph.D. (15 minutes)

- Recognize the benefits of mindfulness meditations for patient's healthy eating and lifestyle journey
- Describe a mindfulness meditation experience to patients

**Mindful Eating for a Healthy Gut-Brain Connection** – Michelle Babb, MS, RDN, CD (60 minutes)

- Recognize the physiological benefits of mindful eating as it relates to digestion and healthy GI function
- Review the neurophysiological benefits of mindful eating
- Identify patients who will benefit from mindful eating guidance
- Provide evidence-based support to teach patients how diet and lifestyle choices can improve bilateral communication between the gut and the brain

**Reactive Hypoglycemia** – Keith Berkowitz, M.D., MBA; Ann Childers, M.D.; Leslie Lee, RD, MS; Wolfram Alderson, MS; Roberta Ruggiero (60 minutes)

- Recognize the context of reactive hypoglycemia (blood glucose dysregulation, medical history, status quo, complications, complexities, and common denominators.)
- Discuss the leading methods for diagnosing reactive hypoglycemia, physical and mental markers, and indications for what is downstream of RH if not undiagnosed and treated.
- Describe leading approaches to treatment (old school, new school, and back to school)
- Describe the protocols for diagnosing reactive hypoglycemia as a general practitioner

**Lifestyle Medicine the Commonsense Solution to the Chronic Disease Epidemic** – Saray Stancic, M.D. (45 minute)

- Learning Objectives: 1. Describe the science of Epigenetics, and its influence on health outcomes. 2. Discuss the leading causes of death in the US and how lifestyle influences risk 3. Define the term, Salutogenesis and why it is an important addition to the medical education model.

**Integrative Approach to Metabolic Syndrome-** Trina Seligman, ND (60 minutes)

- Discuss the common herbs and nutritional supplements used to treat insulin resistance
- Describe combining glucose monitoring and diet to improve HgbA1C and insulin sensitivity.

**Metabolism, Mental Disorders, and the Ketogenic Diet** – Christopher Palmer, M.D. (45 minutes)

- Describe the connections between metabolism, metabolic disorders, and mental disorders
- Outline the evidence for premature aging in people with mental disorders
- Describe the rationale for using the ketogenic diet as a treatment for mental disorders

**Is Low Carb, Protein, or Satiety Best for Metabolic Health and Reversing Type 2 Diabetes?** - Andreas Eenfeldt, M.D. (60 minutes)

- Recognize that what we eat can powerfully influence how much we eat, and how this influences metabolic health.
- Review the three different ways of conceptualizing what foods most effectively stop overeating: low carb, high protein, or high satiety, and the science supporting them

**Ultra-Processed Foods** – Robert H. Lustig, M.D.; Carlos Monteiro, M.D., Ph.D.; Andreas Kornstadt, M.D.; Joan Iffland, Ph.D., MBA (45 minutes)

- Define “ultra-processed foods”
- Explain how ultra-processed food is addictive
- Describe specific actionable criteria that classifies ultra-processed foods
- Review information healthcare professionals can provide to patients to help them navigate the food system and make healthier choices

**The Metabolic Matrix** – Robert H. Lustig, M.D.; Rachel Gow, Ph.D.; Andreas Kornstadt, M.D.; Roberta Ruggiero; Wolfram Alderson, MS (60 minutes)

- Describe the link between metabolic health and nutrition
- Discuss the three pillars of metabolic health - the Metabolic Matrix
- Review next steps to tackling chronic disease and changing the food system to improve patient health