



DIPA 3<sup>rd</sup> edition  
AWARD

May 10, 2023

## Dr. Heather EICHER-MILLER

(Purdue University, West Lafayette, Indiana, USA)  
awarded the Danone International Prize for Alimentation  
DIPA 3<sup>rd</sup> Edition

*for her pioneering work on  
Improving food security, dietary intake, and health  
through integrated science and engineering approaches*



# Dr. Heather EICHER-MILLER

(Purdue University, West Lafayette, Indiana, U.S.A.)  
Laureate of the Danone International Prize for Alimentation



Dr. Heather Eicher-Miller, Associate Professor in the Department of Nutrition Science of the College of Health and Human Sciences at Purdue University, is the Laureate of the 3<sup>rd</sup> Edition of the Danone International Prize for Alimentation (DIPA) for her groundbreaking research into *“improving food security, dietary intake, and health through integrated science and engineering approaches.”*

This pioneering research has tremendous implications for households experiencing food insecurity, where the amount and quality of food are limited.

Dr. Eicher-Miller's award-winning research contributes to reduce food insecurity and improve access to resources which enhance health.

## Dr. Heather Eicher-Miller, awardee of the 3<sup>rd</sup> Edition of the DIPA Danone International Prize for Alimentation

Dr. Heather Eicher-Miller is an Associate Professor in the Department of Nutrition Science at Purdue University, West Lafayette, Indiana in the United States of America. She is also the current director of Indiana's Emergency Food Resource Network, which provides education and support to Indiana's emergency food providers, promoting food security and awareness of hunger issues throughout Indiana.

Dr. Eicher-Miller's research is focused on food insecurity which affects 11% of U.S. households and creates uncertainty regarding the availability of nutritionally adequate and safe foods.

Her work has documented immediate and chronic adverse dietary and health outcomes associated with food insecurity among diverse populations.

Her efforts to evaluate and create evidence-based interventions, programs, and policies have reduced food insecurity and improved access to resources which enhance health.

Dr. Eicher-Miller has also developed novel analytical and methodological techniques, including temporal dietary patterning, to more effectively quantify and evaluate the relationship between dietary behavior and health.

**“Food insecurity is linked to inadequate nutrient intake, poor health and a shortened lifespan.”**

**Dr. Heather Eicher-Miller**

## Improving food security, dietary intake, and health through integrated science and engineering approaches

Dr. Eicher-Miller's research has implications for households that experience food insecurity, where the amount and/or quality of food are limited because of low access to resources. More specifically, she focuses her work on households that experience very low food security, where one or more individuals do not eat enough. In contrast to food insecurity, households in situations of very low food security have received little research attention.

Food insecurity is an unsolved problem of alimentation, critically associated with poor dietary intake, health outcomes, and shorter lifespans for the children, adults, and elderly with limited resources for food.

The U.S. produces enough food to meet the dietary needs of the entire population; however, solving the dietary shortfalls and health problems of those with limited access to enough healthful food is complex as it involves addressing alimentation by:

- creating more healthful food environments and policies;
- improving and creating new interventions;
- changing individual behaviors.



*"I believe that solving food insecurity in the U.S. and around the world is possible and my research is positioned specifically to address this problem."*

Dr. Heather Eicher-Miller

Purdue University, West Lafayette  
Indiana, U.S.A.

**Dr. Eicher-Miller's goal is to improve dietary intake and health of low-resource groups and to eliminate food insecurity. She addresses the complexity of these problems with pioneering integration of multidisciplinary team science in health, exercise, social and computer sciences, family studies, community development, statistics and engineering, to find sustainable and effective solutions.**

### 1. Investigating food environments and policies

The scope of knowledge on food insecurity, dietary status, and health outcomes among very low food secure households was mainly unknown when Dr. Eicher-Miller entered the field and only since 2015 has food insecurity been a recognized issue in the Dietary Guidelines for Americans (DGA). Interventions to improve food security were mainly limited to household food environments, despite the fact that communities may also have an impact on food insecurity, diet, and health. Dr. Eicher-Miller and her team have focused on community food pantries as an entry point for potential solutions among groups with little access to resources, who are often difficult to reach.

Dr. Eicher-Miller's team discovered a food insecurity rate of 88% among clients of 24 food pantries in six Midwestern states, contrasting to the national estimates of 66% food insecurity in U.S. food pantry users.

Further, her team documented extremely poor dietary quality, a high prevalence not meeting nutrient recommendations, and a strikingly high percentage of obesity, diabetes, heart disease and related risk factors among food pantry clients.

Dr. Eicher Miller's research team investigated the food pantry as a point-of-intervention to learn how clients use services and identify novel ways to maximize the nutrition provided in the food pantry food environment. The researchers showed that food security was associated with using food pantries more frequently, and that more frequent use was linked to better dietary quality. The research also revealed that allowing clients to choose the foods they wanted, improving the health of the food pantry foods, and enhancing volunteer and staff outreach have the potential to improve food security, diet, and health.

*"Our aim is to solve food insecurity; our research has created evidence-based interventions and improved current programs and policies that have led to reductions in food insecurity and increased access to dietary resources. We have developed novel tools to holistically consider the relationships of lifestyle behaviors with health."*

Dr. Heather Eicher-Miller and Team



Dr. Eicher-Miller's multi-disciplinary team is pursuing several projects to enhance food security at food pantries and to study dietary intake among those using food assistance programs. The team addresses the significant gaps regarding the nutrient intake, dietary quality and health behaviors of these groups to inform existing programs and create new interventions.

## 2. Improving and creating new interventions.

Nutrition education offers a potentially powerful intervention to improve food security.

Dr. Eicher-Miller secured funding for a project team of experts from statistics, community development, and health science for a randomized, controlled evaluation of a major federal nutrition education program in the U.S., the Supplemental Nutrition Assistance Program-Education (SNAP-Ed). The team determined a 25% improvement in household food security one year after receiving the nutrition education program, effective in both rural and urban settings and in variations of other environmental contexts that was independent of food assistance.

To go further, Dr. Eicher-Miller and her team continue to explore household food security and also dietary intake in a current project that evaluates adult and child dietary intake among households that receive SNAP-Ed. The study builds on prior studies showing that households with food insecurity reserve food considered "healthful" for children, meaning that child dietary quality might improve before adult dietary quality when household food security improves.

The results of the study will inform future programs and policies designed to support food security. The team will also use the results to create supplementary on-demand SNAP-Ed



educational material focused on improving healthful dietary intake for children and adults in situations of household food insecurity.

### 3. Discovering and changing individual behaviors.

Dr. Eicher-Miller also works to discover the complex nature of dietary behavior and the timing of those behaviors in order to improve health. An initial project in this area was focused on discovering the patterns of U.S. adults daily time-bound routines of dietary intake, including the times and amounts of energy consumed over a 24-hour day.

Her team, comprised of electrical engineers, statisticians, and health scientists, created new methods to create these “temporal patterns”. They continued to integrate additional dimensions of behavior to the temporal patterning, like physical activity, in recognition of the multi-dimensionality of lifestyle links to health. The research will answer the question of whether the timing of daily activities is important to health.

Dr. Eicher-Miller leads active pursuit of funding (a pending NIH R01) to integrate multiple daily lifestyle behaviors over time, including diet, activity, sleep, and each of their multiple dimensions. Future research will also expand discovery of patterns among children and adults throughout the lifespan. The long-term goal is to use the patterns for the early detection of unhealthy lifestyles and to prompt behavior change that will reduce the risk of chronic disease. Attention to low-income groups will be a focus where tailored applications may be especially impactful.

### Multidisciplinary and collaborative approaches for major advances in Food Insecurity, Dietary Intake and Health

The field of Nutrition and Alimentation is at a point where the questions that need to be asked in order to continue to expand the frontiers of knowledge are the complex ones requiring multi-disciplinary teams.

Using creative and innovative approaches, Dr. Eicher-Miller's work has addressed these important questions and made major advances regarding how to improve food insecurity, diet, and health.

She leads a team of engineers, statisticians, nurses, exercise and nutrition scientists to create new methodologies that join data driven engineering with model-based epidemiological and statistical analysis.

**Her research brings public attention to the problem of food insecurity and poor diet and the efficacy of nutrition education and interventions in the food environment.**

#### The relevance of the Danone International Prize for Alimentation for Dr. Heather Eicher-Miller

*“In summary, I believe that my research to improve food security, dietary intake, and health through integrated science and engineering approaches is an excellent fit for the Danone International Prize for Alimentation (DIPA) on the basis of our major advances, integral collaborative approaches, and impact, holding future promise.*

*The DIPA will give us a new, prominent platform for exciting advances in enhancing food security and healthy environments for low-income populations.”*

**Dr. Heather Eicher-Miller**

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## The Danone International Prize for Alimentation rewards mid-career scientists for outstanding research

**The Danone International Prize for Alimentation (DIPA) recognizes innovative research leading to strategies promoting sustainable and healthy eating habits. It represents a far-reaching initiative to achieve marked improvements in global health.**

The 100,000 Euro prize is awarded every two years, by the Danone Institute International in collaboration with the French Fondation pour la Recherche Médicale.

### **A prize to encourage innovative research in Alimentation**

**The purpose of the DIPA is to encourage and support cutting edge, innovative and multidisciplinary scientific research in Alimentation, the umbrella term for sustainable eating and drinking practices that contributes to the health of individuals, including food choice, purchase, preparation, cooking and meal organization, and their determinants.**

**The award is intended to raise the profile of a mid-career researcher and accelerate their career, as well as help develop knowledge on the topic and inspire junior researchers and will recognize the work of a single researcher, or a representative of a research team, who is leading a pioneering and collaborative approach in Alimentation.**

### **The DIPA aims to:**

- advance understanding of Alimentation through cutting edge research,
- encourage and inspire pioneering approaches that integrate nutrition research into lifestyle, cultural and socio-economic aspects,
- boost collaboration between the different disciplines affecting nutrition, from anthropology to economics,
- support talented and highly motivated mid-career researchers whose work contributes to scientific excellence in the field of Alimentation.



*" The DIPA is a unique award, as it is mid-career award that recognizes emerging leaders in the field of Alimentation. The aim is to support innovative, multidisciplinary research on sustainable healthy diets "*

Prof. Suzanne Higgs, PhD (School of Psychology, University of Birmingham, UK), President of the Danone Institute International chaired the Selection Committee of the DIPA 3<sup>rd</sup> Edition, who pre-selected the eight finalists.

## A two-stage process to award astonishing researchers

The application process of DIPA is a two-stage process. For this 3<sup>rd</sup> edition, an international call for application was opened from May to October 2022, leading to the reception of 20 applications from all over the World. **After pre-selection by the Prize Committee, eight short-listed applicants were invited to submit a full proposal by the end of 2022.**

**The final applications were analyzed by a dedicated Jury, gathering experts on the topic of "Alimentation", chaired by Prof Michael Prelip, DPA, MPH, Professor of Community Health Sciences at the University of California, Los Angeles, USA.**

**This 3<sup>rd</sup> edition has awarded Dr. Heather Eicher-Miller, Associate Professor at the Purdue University in West Lafayette, Indiana – United States of America, for her groundbreaking research into Improving food security, dietary intake, and health through integrated science and engineering approaches.** She succeeds two other laureates, also awarded for their innovative work in the field of "Alimentation":

- **Dr. Sophie Nicklaus** (French National Institute for Agricultural Research, Center for Taste and Feeding Behavior, Dijon, France), laureate of DIPA 2018 for her work on "Nurturing health through pleasure of eating - the right choices from the start"
- **Dr. Jess Haines** (University of Guelph, Canada), for her research into "Promoting sustainable healthy eating among families, through novel, interdisciplinary research and knowledge mobilization".



*Dr Sophie NICKLAUS  
DIPA 1<sup>st</sup> Edition Laureate  
INRAE – France*



*Dr Jess HAINES  
DIPA 2<sup>nd</sup> Edition Laureate  
Guelph University – Canada*



*Dr Heather EICHER- MILLER  
DIPA 3<sup>rd</sup> Edition Laureate  
Purdue University – U.S.A.*

For more information about the Prize, the Jury or the previous laureates:  
[www.danoneinstitute.org/nutrition-science-support/dipa](http://www.danoneinstitute.org/nutrition-science-support/dipa)



The Danone Institute International (DII) is a not-for-profit organization aiming to promote human health through developing and disseminating knowledge about the links between food and health, and to highlight the importance of nutrition in health. The DII comprises a network of 13 Danone Institutes around the world and involves over 200 experts in this field of science. Find out more at [www.danoneinstitute.org](http://www.danoneinstitute.org)



The French "Fondation pour la Recherche Médicale" (FRM) aims to contribute to the development of pioneering and innovative French medical research, leading to medical advances for all. It is an independent organization, which operates through the generosity of its donors. Find out more at [www.frm.org](http://www.frm.org)