



NUTRI NEWS

The Department of Nutrition

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How Substituting Healthy Plant Proteins for Red Meat Lowers Risk for Heart Disease Explained

According to a new study from the Harvard T.H. Chan School of Public Health and Purdue University, published in the journal *Circulation*, diets that replaced red meat with healthy plant proteins led to decreases in risk factors for cardiovascular disease (CVD). The study is the first meta-analysis of randomized controlled trials examining the health effects of red meat by substituting it for other specific types of foods. *NutriNews* has asked **Dr Marta Guasch-Ferre**, the study's first author, to explain their findings for our readers.



Marta Guasch-Ferré, PhD, is a Research Scientist at the Department of Nutrition at Harvard T.H. Chan School of Public Health. Her research interests include the role of the Mediterranean diet on type 2 diabetes and cardiovascular disease. Dr Guasch-Ferre is currently working on dietary interventions, metabolomics, type 2 diabetes and cardiovascular disease in the context of the PREDIMED Study (a

randomized clinical trial for primary prevention of cardiovascular disease). Dr. Guasch-Ferré's research is also focused on evaluating the effect of olive oil, nuts and other dietary fats on type 2 diabetes and cardiovascular disease in both Mediterranean populations (the PREDIMED Study) and in non-Mediterranean large cohorts (Nurses' Health Study I and II and Health Professionals Follow-up Study). Dr. Guasch-Ferré has participated in the design, logistics, dietary interventions, data management, statistical analysis and manuscript preparation of several clinical trials, including the large PREDIMED Study (more than 7,000 participants).

NN: Dr Guasch-Ferre, I understand your study is the first meta-analysis of randomized control trials to examine the health effects of red meat by substituting it for other specific types of foods. Can you briefly describe your study?

MGF: Previous findings from Randomized Controlled Trials (RCTs) evaluating the effects of red meat on cardiovascular disease risk factors have been inconsistent. However, they have combined the estimates from all non-red meat comparison groups together and it is important to note that these comparison groups varied considerably in the diet quality and composition.

Our new study is the first that makes specific comparisons between diets high in red meat versus diets high in other types of foods separately. We conducted a meta-analysis of previous published studies and included data from 36 RCTs involving 1,803 participants. We have compared people who ate diets with red meat with people who ate more of other types of foods (i.e. chicken, fish, carbohydrates, or plant proteins such as legumes, soy, or nuts) and their effects on blood concentrations of cholesterol, triglycerides, lipoproteins, and blood pressure, all risk factors for Cardiovascular Disease (CVD). We found that substituting red meat with high-quality protein sources lead to more favorable changes in cardiovascular risk factors.

Our findings highlight the importance that when assessing the effects of nutrients or foods we need to take into account the explicit comparison. For example, high-quality plant protein sources generally have higher proportions of polyunsaturated fatty acids and fiber and no cholesterol compared to red meat, but if we compare red meat to refined grains or added sugars, red meat may have null or more beneficial effects on cardiovascular risk factors. For example, "Asking 'Is red meat good or bad?' is useless," said **Dr Meir Stampfer**, Professor of Epidemiology and Nutrition and senior author of the study. "It has to be 'Compared to what?' If you replace burgers with cookies or fries, you don't get healthier. But if you replace red meat with healthy plant protein sources, like nuts and beans, you get a health benefit."



Photo by Limor Laniado Tiroche

NN: What are the key takeaways of your study?

MGF: Our main finding is that when diets with red meat were compared to all other types of diets combined, there were no significant differences in total cholesterol, lipoproteins, or blood pressure,

although diets higher in red meat did lead to higher triglycerides concentrations than the comparison diets. However, we found that diets higher in high-quality plant protein sources such as legumes (chickpeas, lentils, beans), soy, and nuts resulted in lower levels of both total and LDL cholesterol compared to diets with red meat. These findings highlight the importance of the comparison diet, people do not simply eat more or less meat – it will usually be in substitution with other foods. Our findings emphasize the health-promoting effects of high-quality plant protein foods in comparison with red meat and provide evidence for public health messages and clinical advice to favorably impact lipid profiles in the general population.

NN: Why are your findings so important and how does your study differ from previous studies?

MGF: There has been a growing debate on whether red meat is associated with chronic diseases and cardiovascular risk factors. Recently, another important point that is raising awareness in our communities is that our dietary patterns need to consider both human health and environmental impact. Although previous meta-analyses have evaluated the potential effects of red meat consumption on cardiovascular risk factors, lipids and blood pressure, none of them have stratified the analysis by comparison diet, which is the cornerstone of nutritional substitution analysis. Our findings suggest that the inconsistencies found in prior studies regarding the effects of red meat on cardiovascular risk factors may be due, in part, to the composition of the comparison diet.

Our results showing that diets higher in high-quality plant protein sources resulted in lower levels of both total and LDL cholesterol compared to diets with red meat are also in accordance with previous studies showing that tree nuts, especially walnuts, improved total cholesterol and LDL-C relative to a range of comparison diets. Soy-containing foods or soy protein improved all lipid and apolipoprotein parameters, and legumes also reduced LDL-C in comparison with comparison diets, suggesting that plant protein sources are good for blood lipids *per se*. Our findings are also consistent with long-term epidemiologic studies showing lower risks of CVD when nuts and other plant sources of protein are compared to red meat.

Our work compiles all the publications with the highest level of evidence on this topic, RCTs, and will help to provide a strong scientific basis for the 2020 Dietary Guidelines Advisory Committee Report.

NN: Based on the results from your study, what are your recommendations for our readers?

MGF: We recommended adherence to healthy vegetarian and Mediterranean-style diets, both for their health benefits and to promote environmental sustainability.

NN: Dr Guasch, do you plan to undertake any future follow-up studies to determine the health benefits of more plant-based diets?

MGF: We believe that future interventions should consider appropriate comparison foods when examining the effects of red meat intake, or any particular food, on cardiovascular risk factors and should prioritize the use of RCTs to identify food sources that promote optimal health and prevent chronic disease. In particular, there is a need to determine the relative effects of different plant protein sources and red meats with different processing methods and saturated fat content on CVD and other chronic disease risk factors.

“Meta-analysis of randomized controlled trials of red meat consumption compared to various comparison diets on cardiovascular risk factors,” **Marta Guasch-Ferré**, Ambika Satija, Stacy Blondin, Marie Janiszewski, Ester Emlen, Lauren O'Connor, Wayne Campbell, **Frank Hu**, **Walter Willett**, **Meir Stampfer**. *Circulation*. 2019 Apr 9;139(15):1828-1845. doi: 10.1161/CIRCULATIONAHA.118.035225.

NEWS FROM AROUND THE NUTRITION DEPARTMENT

AWARDS AND HONORS

Hilary Farmer, NutriNews Editor, has been selected as a 2019 Harvard Hero. Harvard Heroes, Harvard's premier University-wide recognition program, celebrates the accomplishments of Harvard staff whose work supports the mission of Harvard at the highest levels of contribution, impact and excellence. Being named a Harvard Hero is an honor of high distinction – only about 60 Heroes, or ½ of 1% of eligible staff, are named each year. The HLC Heroes were selected for their hard work and dedication to the University, high level of service and their willingness to go above and beyond to help others whenever needed. The achievements of all staff will be celebrated at the **Harvard Heroes Celebration** on Thursday, June 13th at 3:30pm in Sanders Theater. All are invited and no tickets are needed.

Jake Beckerman, a third year student in the department, has been named a Djokovic Science and Innovation Fellow for 2019-2020. The Novak Djokovic Foundation and the Center on the Developing Child will support the development of Jake's doctoral dissertation with a year-long, multidisciplinary experience as well as a \$10,000 stipend. In 2016, the Center and the Djokovic Foundation launched the Djokovic Science and Innovation Fellowship in an effort to build knowledge and capacities that could enable breakthrough thinking and work that leads to science-based innovations in the field of early childhood development. It aims to advance and deepen its fellows' ability to conduct precise, meaningful, and applicable research, as well as translate and communicate that research to advance early childhood policy and practice settings. The fellowship, which will formally begin at the start of the 2019–2020 academic year in September and will run through June, is an experience designed around a cohort model that prioritizes development of a learning community, in addition to providing important content to the fellows.

Abrania Marrero-Hernandez, doctoral student, Population Health Sciences, has received the 2019 Rose Service Learning Fellowship Award, a Harvard-based program that funds rigorous service learning projects that address community-identified needs, strengthen reciprocal partnerships with community organizations, and develop a deeper commitment to health equity and social responsibility in public health.

Over 80% of Puerto Rico's food is imported, a feature of the island's nutrition transition that has increased the availability of unhealthy processed food and may play a major role in the high prevalence of obesity, diabetes, and other preventable diseases. Research in island nations with similar burdens of chronic conditions, such as American Samoa and Hawai'i, suggests that resilient local agricultural systems have the potential to reduce reliance on unhealthy imported foods, promote economic sufficiency, and increase food security. The Bucarabón Foundation Project, a non-profit organization situated in the traditional coffee-growing town of Maricao, Puerto Rico, has sought to ameliorate health and economic concerns in their community through farm-to-table agricultural programs. This project, a mixed methods study and an extension to research on food access, social connectedness, and physiological stress after natural disasters (**PI: Dr Josiemer Mattei**), seeks to characterize the strengths and needs of agricultural stakeholders throughout the island and inform Bucarabón's programmatic goals. With the intersection of nutrition, climate change, and health in mind, Abrania is excited to learn from the expertise of Maricao community members and hopes that this project can ultimately help strengthen Puerto Rico's food system.

Hannah Cory, doctoral student, was selected as a scholar for the Intersectional Qualitative Research Methods Institute for Advanced Doctoral Students by the Latino Research Initiative this June at the University of Texas-Austin. The goals of the institute are to enhance qualitative research and writing skills; develop critical intersectional perspectives for designing and interpreting research; and develop and hone navigational skills to successfully negotiate academic career paths. At the institute, Hannah will be working on research that she and **Dr Josiemer Mattei** are conducting through a STRIPED grant qualitatively exploring social and cultural weight attitudes amongst Latinx adolescents. The training will help to inform their research by providing training that strengthens their intersectional approach to capture complex and nuanced lived experiences.

Frank Qian, a Master of Public Health student working with **Professor Qi Sun** and **Professor Frank Hu**, has been awarded an Early Investigator Travel Award for giving an oral presentation at the 2019 American Heart Association Epi/Lifestyle Scientific Sessions in Houston, TX, in March.

THESIS DEFENSES

Laila Al-Shaar, doctoral student, successfully defended her dissertation "*Body Mass Index and Physical Activity in Relation to Mortality among Adults with Coronary Heart Disease*".

Ramadhani Abdallah Noor, doctoral student, successfully defended his dissertation titled "*Micronutrient Deficiencies in Tanzania Among Vulnerable Populations: Evidence for Interventions and Programmatic Implications*".

Mariel Arvizu-Boy, doctoral student, successfully defended her dissertation titled "Dietary Patterns and Hypertensive Disorders of Pregnancy".

Allison Andraski, a doctoral student in the BPH program who works with **Professor Frank Sacks**, also successfully defended her PhD dissertation, titled "*HDL in Humans: a Complex System of Proteins, Each with its Own Unique Size Distribution, Metabolism, and Diet Regulation*".

STAFF RETREAT

The Nutrition Department held its annual all-staff retreat on April 23, 2019 in the Armenise Amphitheater at HMS. The retreat, which was organized by **Katrina Soriano**, Director of Administration and Finance, covered such topics as understanding bias and exploring ways to mitigate bias, various fun team-building activities, and managing the world of work. Once again, the retreat was led by **Gillian Simkiss**, Organizational Development Consultant for HLC HR, who generated her trademark high level of enthusiasm and succeeded in getting everybody deeply involved. An added bonus at the end was a lecture by **Dr Lilian Cheung**, Lecturer, who discussed mindfulness and meditation and her friendship and experiences with **Thich Nhat Hanh**, the world-renowned Zen master and spiritual leader. Dr Cheung ended her discussion with a demonstration of mindful walking exercises that included members from the audience.

NEW GRANTS

Dr Shilpa Bhupathiraju, Research Scientist, has received a newly funded R01 titled "Saliva and Plasma Metabolomic Signatures of Diabetes Progression in a Hispanic Cohort".

Dr Qi Sun, Associate Professor, has been awarded a five-year NIDDK-funded R01 grant titled "FOOD-BASED BIOMARKERS, DIET QUALITY, AND CARDIOMETABOLIC HEALTH". The grant is funded through a unique US-Ireland R&D Partnership Programme, which supports tri-partite projects co-funded by the U.S. NIH, the Irish Health Research Board and Science Foundation Ireland, and the Health and Social Care R&D Division in the Northern Ireland. Through the projects, Dr Sun and his team aim to develop and validate novel biomarkers for the intake of specific foods, examine these food markers in relation to coronary heart disease in US cohorts, and evaluate the efficacy of using food biomarker information to help improve diet quality in a trial. These projects will be led by a trans-Atlantic team that consists of multiple groups of investigators in the U.S., Ireland, and Northern Ireland. Primary investigators include **Drs Qi Sun, Frank Hu, Eric Rimm**, Qibin Qi (Albert Einstein College of Medicine), Lorraine Brennan (Ireland), and Jayne Woodside (Northern Ireland).

New Faces in the Department!



Mariana Contiero San Martini
Visiting Student

Hi, everybody!!

I am Mariana (Mari) from Campinas-SP, Brazil. I am very happy to be part of the Nutrition Department team at Harvard TH Chan School of Public Health. I am a nutritionist and a PhD student at the State University of Campinas (Unicamp). As part of my doctoral research I will be here for about half a year as part of the Doctoral Program Sandwich Abroad-CAPES program, under the supervision of **Professor Josiemer Mattei**.

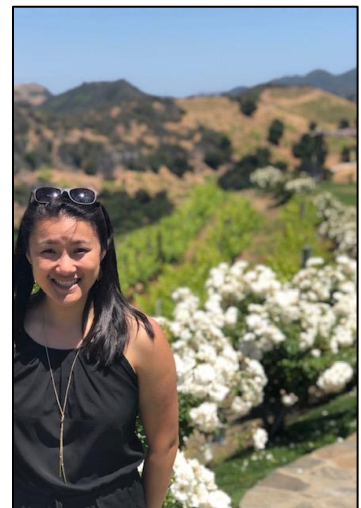
My research project aims to evaluate self-perception and (dis)satisfaction with weight in adolescents, according to demographic and socioeconomic characteristics, nutritional status, health behaviors, food consumption, self-assessment of diet quality and the amount of food ingested in a population-based study.

I received my Master in Sciences degree, Area of Concentration in Child and Adolescent Health, from the Faculty of Medical Sciences, Unicamp. Currently, I am a doctoral student in the same Concentration area.

I am an outgoing person! I like meeting new people and making friendships, visiting different places, going to the beach, listening to music and dancing (I love music!), walking, watching movies, talking with friends and drinking a good coffee, reading, and cooking. I am really enjoying my experience so far at HSPH!! I look forward to making a great network of friends and work colleagues here!!! Best wishes for everyone!!

Liliana Welch
Research Assistant

Lili grew up in the Boston area. She attended Simmons College and completed her B.A. in Business Administration. During the past few years she has explored different career paths, including Event Planning, working for TED Talks, and Administrative work for radio. Lili decided to change gears in order to pursue a career in research. She is excited to join the Nutrition Department and work for the Harvard MIND Trial team. In her free time, she likes being outside, reading, being with friends and working out at Orange Theory. In the summer, she enjoys trips to Acadia National Park, Maine.





Dr Catarina Machado Azeredo
Visiting Scientist

Hello everyone,

I am Catarina from Brazil. I am an associate professor at the Medical School of the Federal University of Uberlandia (Universidade Federal de Uberlândia). I will be here in the Nutrition Department as a visiting scientist until December 2019. Currently I am the PI on a project that aims to assess trends of social inequalities in health-related behaviours among Brazilian adolescents, funded by the Brazilian National Council for Scientific and Technological Development (CNPq). I have studied different individual and contextual characteristics associated with health-related risk factors among adolescents. Among the health-related risk factors, my main research interest is about the consumption of ultra-processed food throughout life and chronic diseases. I am now working under the supervision of **Professor Alberto Ascherio** on a project that examines the association between maternal BMI and physical activity with type I diabetes in the offspring. I am very open to start other research collaborations here or back in Brazil (reach out to me if you are interested). Apart from work, I enjoy hanging out with friends, going on a hike on a sunny weekend, travelling and visiting new places (it's my first time in the US, so I would love to be given some suggestions). As a typical Brazilian, I'm looking forward to the Boston summer!

LAURA KATUSKA, MPH
Study Coordinator, Nurses' Health Study 3

Laura Katuska joined the department at the beginning of March as the new Study Coordinator for the Nurses' Health Study 3 (NHS3). Prior to that, she worked at the Channing Division of Network Medicine as a Research Assistant on various projects for the Growing Up Today Study (GUTS) and NHS cohorts. Laura is a proud Terrier, having received both her undergraduate degree and MPH from Boston University. When not at work, Laura can most likely be found sewing, knitting, running, playing board games, or singing a cappella.



Where Are They Now?



Dr Vasanti Malik, a Research Scientist in the Department, will be leaving to start an Assistant Professor position in the Department of Nutritional Sciences at the University of Toronto this July.

Vasanti graduated from the department in 2010 with a joint degree in Nutrition and Epidemiology with **Dr Frank Hu** as her mentor. Her dissertation focused on adolescent diet and risk of type 2 diabetes in adulthood in the NHS2. As a doctoral student, Vasanti led the first systematic review linking intake of sugar-sweetened beverages to weight gain and obesity, now one of the most highly cited papers on this topic. Since then, she has continued to make important contributions to the literature on sugary beverages and cardiometabolic health, including multiple influential review papers and meta-analyses.

Vasanti has also had a major role in leading the Global Nutrition and Epidemiologic Transition (GNET) Initiative on the design and implementation of qualitative studies and dietary interventions to reduce diabetes risk factors through improving diet quality in a number of countries including China, India, Tanzania, Kuwait, Iran, Malaysia and Nepal. In addition to research, Vasanti has also been committed to teaching and educational excellence in the department and co-teaches an Advanced Obesity Epidemiology course as well as a Nutrition and Global health course at Harvard College among others. She had played a pivotal role in developing the new MPH-65 program in Nutrition, which rolls out this fall and currently serves as the faculty director and member of the MPH Steering Committee at the school.

Vasanti will continue to advance her research in chronic disease epidemiology in Toronto where she plans to expand her global health work and also explore diet and lifestyle risk factors among diverse populations in Canada. She will start teaching a global chronic disease epidemiology course next year. The move to Toronto is also a personal one as the city is home to Vasanti but she hopes to visit often and maintain many of the fruitful collaborations that she has built in the department over the past 14 years.

MONDAY NUTRITION SEMINARS

The Department of Nutrition holds its weekly **Monday Nutrition Seminar Series** every Monday throughout the academic year. The talks are varied, but they highlight the many different aspects of cutting-edge research that is currently being conducted in the fields of nutrition and global public health. These seminars are held from **1:00-1:20 pm in Kresge 502** at the Harvard T.H. Chan School of Public Health. The seminars are free and open to the public.

The following speakers will present their work in May:

May 6: **Dr. Lindsay Jaacks**, Assistant Professor in the Department of Global Health and Population, Harvard T.H. Chan School of Public Health; and Visiting Professor at the Public Health Foundation of India. *"The Global Syndemic of Obesity, Undernutrition, and Climate Change."* (NGHP)

May 13: **Julia L. Finkelstein, MPH SM ScD**, Assistant Professor of Epidemiology and Nutrition, Division of Nutritional Sciences, Cornell University. TBD.

Special Nutrition Seminar:

May 23: **Professor Mark A. Hull**, Professor of Molecular Gastroenterology, University of Leeds and Leeds Teaching Hospitals NHS Trust, *"Omega-3 fatty acids for prevention and treatment of colorectal cancer: Clinical evidence and mechanistic insights"*.

This will conclude our Monday Nutrition Seminar Series for this academic year. Our regular Monday Seminar Series will resume in Fall 2019.

For more information, contact: hfarmer@hsph.harvard.edu

RECIPE CORNER

Warm Potato Salad with Arugula

(By Julie Coleman, Research Assistant)



This recipe was adapted from Olivia's Organics

Ingredients

- 1.75-2 pound tri-colored potatoes
- 1/4 cup extra virgin olive oil
- 2 tablespoons Dijon mustard

- 1 1/2 tablespoon white wine vinegar (can use sherry vinegar)
- 1 tablespoon lemon juice
- 2 cloves garlic - minced
- 1/4 cup red onion - finely chopped
- 1 (5oz) package of baby arugula
- Salt and pepper to taste

Preparation

- Place potatoes in a pot of cold water. Bring to a boil and cook on medium heat until tender, approximately 15 minutes. Remove potatoes from water and let cool slightly.
- In the meantime, in a large bowl, combine the extra virgin olive oil, Dijon mustard, white wine vinegar, lemon, garlic and onion, whisk to mix well. Season with salt and pepper.
- Cut warm potatoes in half or quarters and add to the bowl with the dressing. Add the arugula and toss all together until mixed well. Serve warm or at room temperature.

From: <http://oliviasorganics.org/recipes/warm-potato-salad-with-arugula/>

NUTRITION SOURCE UPDATES



The Kid's Healthy Eating Plate - now in Spanish

Una guía visual para ayudar a educar y motivar a los niños a comer bien y mantenerse en movimiento:

<https://www.hsph.harvard.edu/nutritionsource/el-plato-para-comer-saludable-para-ninos/>

Food Feature: Chickpeas (Garbanzo Beans)

Learn more about these versatile legumes which are a staple of diets worldwide:

<https://www.hsph.harvard.edu/nutritionsource/chickpeas-garbanzo-beans/>

Protein

Protein is an essential macronutrient, but not all food sources of protein are created equal, and you may not need as much as you think. Learn the basics about protein and shaping your diet with healthy protein foods:

<https://www.hsph.harvard.edu/nutritionsource/what-should-you-eat/protein/>

What is EVERGREEN: The EVIDence-based Research GROUP to Evaluate Nutrition policy?

EVERGREEN: The EVIDence-based Research GROUP to Evaluate Nutrition policy is a team of faculty, researchers, and students at the Harvard T.H. Chan School of Public Health that are committed to improving population health through research and evaluation of U.S. nutrition policies and programs. Led by **Dr. Eric Rimm**, in the Departments of Nutrition and Epidemiology, and **Dr. Sara Bleich**, in the Department of Health Policy and Management, this interdisciplinary research group investigates a wide variety of policy-relevant nutrition topics in the public and private sectors, such as the impact of financial incentives on the diets of SNAP participants, the effects of the Philadelphia beverage tax on prices and pass-through charges, the influence of food industry marketing programs such as Box Tops on consumer choice for families, and the impact of supermarket choice architecture, such as promotions and product placement, on food purchases, among many other projects.

Interested in our group?

- Check out our website: <https://sites.sph.harvard.edu/evergreen/>
- Read our newsletter: <https://mailchi.mp/7c35d077c445/newest-updates-from-evergreen-520417>
- Contact Aarohee Fulay (afulay@hsph.harvard.edu) for more information!

20th Annual Harvard Nutrition and Obesity Symposium

LONGEVITY

Longevity & Aging:
Nutritional and Metabolic Mechanisms

SAVE THE DATE! July 10th & 11th, 2019

at The Joseph B. Martin Conference Center
Boston, MA

Invited Speakers:

<i>Jan Vijg, Ph.D.</i>	<i>William Mair, Ph.D.</i>	<i>Nir Barzilai, M.D.</i>
<i>Rozalyn Anderson, Ph.D.</i>	<i>Vamsi Mootha, M.D.</i>	<i>Valter Longo, Ph.D.</i>
<i>Roman Kondratov, Ph.D.</i>	<i>Alex Soukas, M.D., Ph.D.</i>	<i>Bradley Willcox, M.D.</i>
<i>Mark Mattson, Ph.D.</i>	<i>Raul Mostoslavsky, M.D., Ph.D.</i>	<i>Jay Olshansky, Ph.D.</i>
<i>Susan Erdman, D.V.M., M.P.H.</i>	<i>Richard Miller, M.D., Ph.D.</i>	

Presented by:

NORCH National Obesity Research Center at Harvard
HARVARD MEDICAL SCHOOL
NIH National Institutes of Health
NORC National Obesity Research Center

Save-the-Date!

50th Anniversary of the White House Conference on Food, Nutrition, and Health

10/3/19 and 10/4/19

Use the link below to sign-up for the event's mailing list and more information

<https://sites.tufts.edu/foodnutritionandhealth2019/>

Mark your calendar for a historic nutrition policy event hosted by The Friedman School of Nutrition Science and Policy and the Department of Nutrition at the Harvard T.H. Chan School of Public Health.

Activities will start the afternoon (4:00-6:30 pm) of 10/3/19 with a keynote speaker, panel discussion, and reception hosted by the Department of Nutrition at the Harvard Chan in the Kresge Café.

On Friday, 10/4/19 there will be a full day event with panel discussions and speakers at The Friedman School of Nutrition Science and Policy.

More details will follow.