



**Featured Publication:  
"Fructose Consumption  
Reduces Fat Oxidation" -Cell  
Metabolism. SEE NEXT PAGE!**

## Recent Publications from NORCH Investigators

**Parental Obesity and Offspring Pubertal Development: Project Viva.** Aris IM, Rifas-Shiman SL, Li LJ, Fleisch AF, **Hivert MF**, Kramer MS, **Oken E**. J Pediatr. 2019 Oct 8. pii: S0022-3476(19)31087-X. doi: 10.1016/j.jpeds.2019.08.029. [Epub ahead of print] PMID: [31604633](#)

**Effects of tesamorelin on non-alcoholic fatty liver disease in HIV: a randomised, double-blind, multicentre trial.** Stanley TL, **Fourman LT**, Feldpausch MN, Purdy J, Zheng I, Pan CS, Aepfelbacher J, Buckless C, Tsao A, Kellogg A, Branch K, Lee H, Liu CY, **Corey KE**, **Chung RT**, **Torriani M**, Kleiner DE, Hadigan CM, **Grinspoon SK**. Lancet HIV. 2019 Oct 11. pii: S2352-3018(19)30338-8. doi: 10.1016/S2352-3018(19)30338-8. [Epub ahead of print] PMID: [31611038](#)

**Geographic Availability of Physicians Certified by the American Board of Obesity Medicine Relative to Obesity Prevalence.** Gudzone KA, Johnson VR, Bramante CT, **Stanford FC**. Obesity (Silver Spring). 2019 Sep 13. doi: 10.1002/oby.22628. [Epub ahead of print] PMID: [31515965](#)

**Metabolite Profiles of Incident Diabetes and Heterogeneity of Treatment Effect in the Diabetes Prevention Program.** Chen ZZ, Liu J, Morningstar J, Heckman-Stoddard BM, Lee CG, Dagogo-Jack S, Ferguson JF, Hamman RF, Knowler WC, Mather KJ, Perreault L, **Florez JC**, Wang TJ, **Clish C**, Tempresa M, **Gerszten RE**; and the Diabetes Prevention Program Research Group. Diabetes. 2019 Oct 3. pii: db190236. doi: 10.2337/db19-0236. [Epub ahead of print] PMID: [31582408](#)

**Obesity Tissue: Composition, Energy Expenditure, and Energy Content in Adult Humans.** Hwaung P, Bosty-Westphal A, Muller MJ, Geisler C, Heo M, Thomas DM, Kennedy S, **Heysfield SB**. Obesity (Silver Spring). 2019 Sep;27(9):1472-1481. doi: 10.1002/oby.22557. Epub 2019 Jul 19. PMID: [31322323](#)

**Marrow adipose tissue in adolescent girls with obesity.** Singhal V, Bose A, Liang Y, Srivastava G, Goode S, **Stanford FC**, **Misra M**, **Bredella MA**. Bone. 2019 Oct 14; 129:115103. doi: 10.1016/j.bone.2019.115103. [Epub ahead of print] PMID: [31622774](#)

**Predictive metabolomic profiling of microbial communities using amplicon or metagenomic sequences.** Mallick H, Franzosa EA, McIver LJ, Banerjee S, Sirota-Madi A, Kostic AD, **Clish CB**, Vlamakis H, **Xavier RJ**, Huttenhower C. Nat Commun. 2019 Jul 17;10(1):3136. doi: 10.1038/s41467-019-10927-1. PMID: [31316056](#)

## General Announcements

# SAVE *the* DATE

21st Annual Harvard Nutrition and Obesity Symposium

## Non Alcoholic Fatty Liver Disease (NAFLD):

### Mechanisms and Novel Therapeutics

June 30<sup>th</sup>, 2020

at The Joseph B. Martin  
Conference Center Boston, MA

#### Speakers:

Sudha Biddinger, MD

Zobair Younossi, MD, MPH

Elizabeth Speliotes, MD, PhD, MPH

Jeffrey Schwimmer, MD

Bernd Schnabl, MD

Jagpreet Chhatwal, PhD

Kathleen Corey, MD, MPH

Arun Sanyal, MD

Steven Grinspoon, MD

Mary Rinella, MD

Miriam Vos, MD

Manal Abdelmalek, MD

Rohit Loomba, MD, MHSC

Presented by:



## Event Highlight:

### Longwood Nutrition Seminar 2019-2020 – Division of Nutrition at Harvard

Tuesday, December 3, 2019 from 12:00-1:00PM – Lunch will be served at 11:30AM

"Translating Nutrition Research to Practice – Evidence-Based Tools for Preventing and Treating Childhood Obesity"

Cara B. Ebbeling, Ph.D., Co-Director, New Balance Foundation Obesity Prevention Center, Division of Endocrinology, Boston Children's Hospital  
Maria B. Schwartz, MPH, CHES, Community Outreach Program Manager, Division of Endocrinology, Boston Children's Hospital

Location: Cannon Room (Building C1), Medical Education Center, Harvard Medical School, 260 Longwood Avenue

For further information: contact: Dr. Christopher Duggan or Barbara Ainsley @ 617-667-2604



## @ Local NORCH Affiliates

### **Harvard T.H. Chan School of Public Health Department of Nutrition's 15th Annual Stare-Hegsted Lecture**

Thursday, November 14, 2019 from 4:00-5:30PM  
"Dietary Guidelines and Sustainability: Politics, Policies and Practice" Miriam E. Nelson, Ph.D., Professor Emerita, School of Nutrition Science and Policy at Tufts University  
Location: Kresge Cafeteria, Kresge Building: 677 Huntington Ave

### **Monday Nutrition Seminar Series, Department of Nutrition, Harvard T. H. Chan School of Public Health**

Monday, November 18, 2019 from 1:00-1:50PM  
"TBD" Dr. Christopher Gardner, Director of Nutrition Studies at Stanford Prevention Research Center, Professor of Medicine at Stanford University, Stanford  
Location: Harvard T.H. Chan School of Public Health, 677 Huntington Avenue Kresge 502

Monday, November 25, 2019 from 1:00-1:50PM  
"Using Entertainment Media to Address Nutrition and Public Health Issues Worldwide" Dr. William N. Ryerson, President, Population Media Center, University of Colorado, Boulder Location: Harvard T.H. Chan School of Public Health, 677 Huntington Avenue Kresge 502

### **30th Annual Sidney H. Ingbar Lectureship; BIDMC Endocrinology Grand Rounds, The Division of Endocrinology, Diabetes & Metabolism, Beth Israel Deaconess Medical Center**

Friday, December 20, 2019 from 9:00-10:00AM  
"TBD" William Young, M.D., Department of Endocrinology, Diabetes, Metabolism, Nutrition, Tyson Family Endocrinology Clinical Professor, Mayo Clinic College of Medicine  
Location: Beth Israel Deaconess Medical Center, 330 Brookline Ave, Shapiro 2, Leventhal Conference Room



## Publication Spotlight

### **Fructose Consumption Reduces Fat Oxidation**

In work supported in part by a NORCH Pilot and Feasibility grant to first author Samir Softic, Softic and colleagues further elucidate the mechanisms by which dietary fructose alters hepatic lipid metabolism. In a mouse model in which C57Bl6/J mice are fed chow vs. high fat diet (HFD) with water alone, water with fructose (HFD + F), or water with glucose (HFD + G), HFD + F as compared to HFD + G reduced fatty acid oxidation through three different mechanisms: (1) reduction in the activity of carnitine palmitoyl transferase 1a (Cpt1a), which catalyzes the rate limiting step in fatty acid oxidation by facilitating transport of acylcarnitines into the mitochondria; (2) decrease in mitochondrial size and overall mitochondrial protein mass; and (3) alterations in proteins involved in fatty acid oxidation, changing their activity. In contrast, glucose supplementation in the HFD condition activated pathways to increase fatty acid oxidation, demonstrating divergent effects compared to fructose. This work highlights that, in addition to stimulating lipogenesis, fructose ingestion reduces lipid oxidation via multiple additional mechanisms. In the context of high fat diet, additional consumption of fructose further exacerbates the metabolic dysregulation that leads to obesity related complications.

#### **Citation:**

**Softic S**, Meyer JG, Wang GX, Gupta MK, Batista TM, Lauritzen HPMM, Fujisaka S, Serra D, Herrero L, Willoughby J, Fitzgerald K, Ilkayeva O, Newgard CB, Gibson BW, Schilling B, Cohen DE, **Kahn CR**. Dietary Sugars Alter Hepatic Fatty Acid Oxidation via Transcriptional and Post-Translational Modifications of Mitochondrial Proteins. *Cell Metab.* 2019 Oct 1;30(4):735-753.e4. doi: 10.1016/j.cmet.2019.09.003. PMID: 31577934.



Our work as a Center is measured in part by the contributions we make to published science. Please cite the National Institutes of Health Grant P30 DK040561 in all publications that results from the use of NORC-H services or resources.

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## Investigator Spotlight

**Andrea G. Edlow, MD, MSc**

**Title: Assistant Professor**

**Current Appointments: Assistant Professor of Obstetrics Gynecology and Reproductive Biology, Harvard Medical School Maternal-Fetal Medicine Staff, Massachusetts General Hospital Investigator, Vincent Center for Reproductive Biology**

**Background:** I am an Ob/Gyn (a Maternal-Fetal Medicine subspecialist) at Massachusetts General Hospital, and spend about 75% of my time doing research. I did my residency at Massachusetts General Hospital and Brigham and Women's Hospital in 2007, and after six years away, I recently returned to MGH in 2017 and started my own laboratory here. My research focuses on the effects of maternal obesity and maternal nutrition on fetal brain development and offspring behavior, and how these effects are modified by fetal sex. The broad goal is to elucidate mechanisms underlying neurodevelopmental morbidity observed in offspring of obese women.

**Research Interests:** 1) Brain-placental crosstalk in maternal obesity, and how immune activation in the placenta may lead to fetal brain immune activation and inflammation. 2) Maternal obesity-associated malprogramming of fetal and offspring reward circuitry. Specifically, we are exploring how maternal obesity and high-fat diet feeding dysregulate offspring mesolimbic reward signaling during critical developmental windows, and how such dysregulation may drive offspring to overeat, contributing to transgenerational obesity propagation.

**How have NORCH and/or NORCH Core Services helped:** The joint funding from the NORCH/BADERC (Boston Area Diabetes Endocrinology Research Center) Pilot and Feasibility Grants has allowed me to examine receptor expression in key regions of the mesolimbic dopamine circuit across development in offspring from my model, and to examine hedonic feeding behavior in these offspring. Through techniques learned from Dr. Alex Soukas's lab at the NORCH Metabolic Phenotyping core, I have been able to generate detailed metabolic profiles of the offspring, including indirect calorimetry analyses using Dr. Soukas' metabolic cages. Data we have generated through our collaboration with the NORCH Metabolic Phenotyping core and as part of the P&F grant will form the basis for an R21 application we plan to submit in 2020.



**What inspired you to become an academic researcher?**

The ability to help many more patients than I can by treating the individual in front of me, through advancing scientific knowledge. Also, the thrill of being the first person in the world to know the answer to a very interesting question, when I analyze new data for the first time.

**What has been the most exciting moment in your career?**

For my research career, getting my first R01, without a doubt! In my clinical career, I would have to say it's a tie between the 100s of births I have had the privilege of attending.

**If you could change one thing about the way we conduct or communicate research, what would it be?**

In this era of team science and the need for vast and wide-ranging expertise to conduct the most cutting-edge research, I would love to improve on our archaic "first author last author" publication structure. There has to be a better way to recognize everyone's contributions and to encourage and incentivize collaboration!

**What is your favorite paper from a lab other than your own?**

Ginhoux's 2010 paper in Science, "Fate mapping analysis reveals that adult microglia derive from primitive macrophages." The in vivo lineage tracing studies are so elegant, and demonstrate the fetal origins of our lifelong pool of brain microglia. As a researcher interested in fetal programming and neuroinflammation, this discovery was so pivotal.

**What is your favorite TV show?** My favorite TV show is Breaking Bad. As a native of Albuquerque, NM, I love everything about this show!



## The News from other NORC's

### Nutrition Obesity Research Center @ Columbia

#### **DeWitt Goodman Seminar Series**

Wednesday, November 20, 2019- Sarah Tishkoff, PhD, *David and Lyn Silfen University Professor, Departments of Genetics and Biology University of Pennsylvania*: "African Genomics: Implication for Studies of Human Evolution and Disease."

Wednesday, December 4, 2019- Russell DeBose-Boyd, PhD, *Beatrice and Miguel Elias Distinguished Chair in Biomedical Science, Professor of Molecular Genetics UT Southwestern Medical Center*. "TBA"

### Nutrition Obesity Research Center @ Boston University CONT.

#### **Adipose Seminar Series sponsored by the Adipose Tissue Biology and Nutrient Metabolism Core (ABM) of the Boston Nutrition Obesity Research Center**

Tuesday, November 19, 2019 from 10:00-11:00AM

"Nutrient Sensors as ConduCTORs of Metabolism in Adipocytes" David Guertin, Ph.D., Associate Professor of Medicine, Program in Molecular Medicine, University of Massachusetts Medical School

Location: BUMC, EBRC Building, 650 Albany Street, 7th Floor, Room 714

Tuesday, December 3, 2019 from 10:00-11:00AM

"Environmental PPAR $\gamma$  Ligands: Inducers of White, but not Brite, Adipogenesis" Jennifer Schlezinger, Ph.D., Associate Professor of Environmental Health, Boston University School of Public Health

Location: BUMC, EBRC Building, 650 Albany Street, 7th Floor, Room 714

Tuesday, December 17, 2019 from 10:00-11:00AM

"TBD" Dean P. Jones, Ph.D., Professor of Medicine and Biochemistry, Director, Clinical Biomarkers Lab, Emory University

Location: BUMC, EBRC Building, 650 Albany Street, 7th Floor, Room 714

#### **Save the Date - BNORC Annual Program: Adipose Tissue Role in Obesity sponsored by Boston Nutrition Obesity Research Center**

Friday, December 13, 2019 from 8:30AM-1:30PM

Check-In from 8:30-9:00AM

Plenary Session from 9:00AM-12:15PM

Valentina Perissi, Ph.D., Associate Professor of Biochemistry, Boston University School of Medicine

Lydia Lynch, Ph.D., Lecturer of Medicine, Brigham and Women's Hospital

Location: BUSM, 72 East Concord Street, Instructional Building, Hiebert Lounge

Michael D. Jensen, M.D., Professor of Medicine, Consultant, Division of Endocrinology, Diabetes, Metabolism, Nutrition, Department of Internal Medicine, Maya Clinic College of Medicine

Pilot and Feasibility Investigator

Jun Li, M.D., Ph.D., Postdoctoral Research Fellow, Harvard TH Chan School of Public Health

Judged Poster Session from 12:15-1:30PM

Location: BUSM, 72 East Concord Street, Instructional Building, Hiebert Lounge

Please contact [Donna Gibson](#) for additional information. Additional program details including registration information will be provided at a later date.

#### *MAILING ADDRESS:*

Nutrition Obesity Research Center at Harvard Medical School  
Massachusetts General Hospital  
55 Fruit St. 5LON207  
Boston, MA 02114

#### *PHONE & EMAIL:*

(617) 724-9109  
[HarvardNORC@mgh.harvard.edu](mailto:HarvardNORC@mgh.harvard.edu)



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