

Magazine of the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy
and the Jean Mayer USDA Human Nutrition Research Center on Aging
Summer 2018 Vol. 19 No. 2

Tufts

Nutrition



THE NEXT BIG IDEA

How entrepreneurs are creating a healthier food system, one innovation at a time



THE GREAT ARTICHOKE WAR OF 1935

The salty, sandy soil on the north coast of Santa Cruz County, California, makes it ideal for growing artichokes. In the 1930s, it was also the perfect place for racketeering. Back then, artichokes were so popular that some heavies from the Union Pacific Produce Company decided to lowball farmers, then sell the crops for more than double the price they paid. To keep complainers in line, they roughed up push-cart peddlers and sabotaged trucks.

"This story has all the violence, deceit and mobster-esque excitement of the Prohibition Era," write Jody Biergiel Colclough, N06, and co-authors in their new book about Santa

Cruz food history, *Harvesting Our Heritage* (scheritagefood.com). The "Artichoke War," as the press dubbed it, came to a head in 1935, when New York City Mayor Fiorello La Guardia swore no artichokes would enter his city until the racketeers were caught. They were soon tried and found guilty.

Among the other food tales in the book: the county's run as an international hops exporter, the growth in popularity of once-rare strawberries, and the sad story of a clam-digging craze that helped decimate Pismo clams, which once grew to several pounds. "Every generation must study the stories of the past and add its chapter," the authors write. "This is our offering."

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Celebrating 40 Years



THIS YEAR, THE Friedman School is celebrating its 40th anniversary.

When Jean Mayer arrived at Tufts as president in 1976, one of his first priorities was to create an institution focused on nutrition. President Mayer was an accomplished Harvard bench scientist who had studied the regulation of hunger, food intake, and weight gain in animal models and people. Yet his work outside the lab had convinced him that while nutrition science involved biochemistry, it went far beyond that: social science, behavior, communication, equity, policy, economics, agriculture, food systems, sustainability, and much, much more. As an adviser to three U.S. presidents, the principal organizer of the first (and still only) White House Conference on Nutrition in 1969, and a tireless champion for national policies to reduce hunger and improve nutrition among the poor and older adults, Mayer realized that multiple disciplines were needed to create an exceptional institution with powerful impact.

In 1977, President Mayer and his new recruit Stanley Gershoff launched the Tufts Nutrition Institute, which soon became our school. Their foresight was remarkable: creating an interconnected, multidisciplinary institution that considers all aspects of the food system, from cell to society. The Friedman School—today including 60 primary faculty, more than 100 secondary and affiliated faculty, 350 graduate students, and more than 2,000 alumni—is now known worldwide for its multifaceted approach to education, research, and translation in nutrition science and policy.

On October 18, 2018, we will be hosting our 40th anniversary celebration at the Friedman School in Boston. We will use this day to award our inaugural Jean Mayer Prize in Nutrition Science & Policy—a biennial “mini-Nobel” prize, supported by a gift from John Hancock, for leaders who have achieved real impact in nutrition science or policy. This first prize will be jointly awarded to U.S. Senator Lisa Murkowski, former U.S. Senator Tom Harkin, former USDA Secretary Tom Vilsack, and the Center for Science in the Public Interest for their bipartisan success in helping to pass the Healthy Hunger-Free Kids Act, a major advance for healthier eating in schools, early child care, and after-school across the United States. We look forward to sharing these events with our community, including our alumni, Board of Advisors, Tufts Nutrition Council, Entrepreneurship Advisors, and other collaborators, friends, and supporters.

Please join us in celebrating 40 years of Tufts Nutrition. We have achieved much, and the best is yet to come!

DARIUSH MOZAFFARIAN, M.D., Dr.P.H.

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Tufts Nutrition

VOLUME 19, NO. 2
SUMMER 2018

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Tufts Nutrition is a publication of the
Gerald J. and Dorothy R. Friedman School
of Nutrition Science and Policy and the Jean
Mayer USDA Human Nutrition Research Center
on Aging at Tufts. It is distributed to alumni,
students, faculty, staff and friends.

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Our Future Depends on Young Scientists



AS I TAKE on the role of center director and continue my research in the Vitamin K Lab, I realize that I need to give up some commitments. However, teaching and mentoring students won't be among them.

Students nourish my intellect and spark my passion for research. The success of my science depends on their sharing new ideas and questioning conventional beliefs. I expect students, especially those adept at technology and pop culture, to mentor me.

The HNRCA's practice of supporting graduate students from Tufts' Friedman, Arts and Sciences, and Sackler schools—as well as undergraduates from Tufts, UMass, and Northeastern—is driven by our commitment to developing the next generation of scientists. We provide amazing hands-on lab experiences and challenging research opportunities that have students publishing, presenting at conferences, and positioned for academic honors ahead of many of their peers. Our graduates now hold important positions throughout the research community, academia, and industry.

Unfortunately, the probability of promising trainees being able to secure a slot on National Institutes of Health (NIH) training grants and other outside funds is diminishing. That's why the HNRCA is building the Young Investigators Endowment Fund to provide student stipends to relieve their tremendous financial burden. This effort is being led by Dr. Ronenn Roubenoff, head of Novartis' Global Translational Medicine for Musculoskeletal Diseases and a former HNRCA lab director, who knows how critical it is to build a robust pipeline of young scientists.

When I was a young researcher in the 1990s, the success rate for securing NIH funding by age 39 was 46 percent. Today, it's about 19 percent. This is very discouraging to many promising investigators—and forces far too many to switch careers. “We have a serious risk of losing the most important resource that we have, which is this brain trust, the talent, and the creative energies of this generation of scientists,” said Dr. Francis Collins, head of the NIH. In 2015, Collins warned that if trends continued, the United States would relinquish its international lead in biomedical research within the next decade.

Being a scientist is the second most respected profession (between doctors and firefighters), according to a 2016 Harris Poll. But scientists deserve greater financial investment from the public and private sectors, or else the occupation will soon become an endangered job in the United States.

SARAH BOOTH, Ph.D.

Director, Jean Mayer USDA Human Nutrition Research Center on Aging

RESEARCHERS YOU'LL MEET IN THIS ISSUE



When not examining the nutritional value of crickets (see page 12), **JOEL MASON**, director of the HNRCA's Vitamins

and Carcinogenesis Laboratory, studies B-vitamins and obesity and their relation to colorectal and breast cancer. A professor at the Friedman School and the School of Medicine, he is also a staff physician in the gastroenterology and clinical nutrition divisions of Tufts Medical Center.



ELENA NAUMOVA loves statistics, the more complex the better (see page 6). The Friedman School professor

is a director of the Tufts Initiative for Forecasting and Modeling of Infectious Diseases, and collaborates with epidemiologists, immunologists, and public health professionals around the world. She is also an adjunct professor at the School of Medicine and in the department of Civil and Environmental Engineering.



In addition to searching for smart solutions to food insecurity in the Nutrition Innovation Lab (see page

8), **PATRICK WEBB**, the Alexander McFarlane Professor of Nutrition, leads the U.S. government's Food Aid Quality Review. He previously served as chief of nutrition for the United Nations' World Food Programme, and has worked with governments and donor organizations worldwide.



Researcher Kieran Reid visits an exercise class at the Somerville Council on Aging.

A Step Forward for Older Adults

A Tufts community-based study shows exercise improves mobility, cognition, and quality of life. **BY LAURA FERGUSON**

ON AN APRIL morning at the Council on Aging in Somerville, Massachusetts, the 9 a.m. exercise class was in full swing. Health and Wellness Coordinator Chris Kowaleski encouraged his 15 students to step it up. “All right: chair stands! You know you missed them!”

“Can we do those in spirit?” quipped one participant, to laughs from around the room.

“As much as you would like to – no!” Kowaleski replied. “Here we go!”

If no one gets a pass when it comes to the chair stand, it’s because Kowaleski knows how important exercise is to maintain the health and independence of older adults. One in four older Americans will suffer from limited mobility, and those who do have substantially higher rates

of hospitalizations, institutionalization, and death. The chair stand might seem simple—getting up from a seat without using arms—but it works large muscles essential for walking, balance, and daily functions.

It’s also why he was happy to work with the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts (HNRCA) when it wanted to translate a national clinical study on mobility among at-risk seniors into a community-based senior center. The ENGAGE study focused on enhancing healthy aging with group-based interventions, and by working with Somerville, the researchers extended their lab findings. Mobility, cognitive function, and quality of life all improved among those who exercised in the study.

“Our findings from ENGAGE may represent a scalable model for reducing the risk and incidence of mobility-disability,” said principal investigator Kieran Reid, a scientist in the HNRCA’s Nutrition, Exercise Physiology and Sarcopenia Laboratory and an assistant professor at the Friedman School. “We clearly saw the benefits of physical activity in this community-center environment, and that was very rewarding. It was particularly important that the center allowed us to focus on implementing physical activity as a group effort—that added a very important social factor.”

Reid got the idea for ENGAGE after the success of a national clinical trial known as LIFE, short for Lifestyle Interventions and Independence for Elders. To date, the physical activity intervention from LIFE is the “only known lifestyle intervention to conclusively prevent mobility disability among at-risk older adults,” Reid said. The program demonstrated that physical activity reduced mobility-disability

by as much as 28 percent in a clinical laboratory setting.

To see whether he could get similar results in a community setting, where such interventions can reach far more people, Reid looked to the Somerville Council on Aging, where Tufts had already established a partnership through its Fit-4-Life program. “They are really loyal collaborators,” he said, “and I believe it’s important that we work with and help our local communities before we potentially take our work to a bigger stage.”

The 24-week ENGAGE pilot study included forty adults, ranging in age from 65 to 89, and all with mobility limitations (over half reported falling in the previous six months). The study used the existing infrastructure of the senior center, including corridors for aerobic walking exercise, and a dining room for balance, strength, and flexibility training.

The ENGAGE study extended the benefits of the LIFE study to a real-world population of older adults, said Reid. “We found improvements in



mobility but also positive benefits on executive cognitive function, quality of life, depressive symptoms, and a reduction in the number of falls.” Looking ahead, Reid sees the Somerville model as a springboard for developing programming at multiple community and senior centers, where existing staff may be able to run it.

Kowaleski, the wellness coordinator said he was encouraged by the results among Somerville participants.



“Everyone had a positive comment or feedback,” he said, “and that gives what we’re doing with our own fitness programs even more credibility.”



NOT TOO COOL FOR FARM TO SCHOOL

Farm-to-school programs help schools purchase fruits and vegetables directly from local farmers. But farmers don’t do it just for the money. In a survey, most said their top motivation was helping their communities.

Megan Lehnerd, NG18, a Newman’s Own Foundation fellow at the Friedman School, surveyed 155 fruit-and-vegetable farmers about their views on farm-to-school programs as well as farmers’ market nutrition-incentive programs, which give discounts to low-income families to buy local produce. Three-quarters of the farmers said their main reasons for taking part were related to social improvements, such as helping feed people, building community relationships, teaching kids how food grows, and boosting nutrition.

That said, economics is still important: Most farmers surveyed said the programs did add to their bottom line.

The research was published in the *Journal of Agriculture, Food Systems, and Community Development*.



TUFTS NUTRITION TOP 10

How We're Using Big Data to Improve Health

BY HELENE RAGOVIN

FROM FIGHTING FAMINE to improving food safety to providing a richer trove of material for researchers to mine, “big data” is transforming nutrition. But the name is something of a misnomer—volume is not the only important characteristic. According to Professor Elena Naumova, chair of the Nutrition Data Science division at the Friedman School, 21st century technology—particularly increased computing capacity—lets us get richer data than ever, delivered faster than ever. We can plumb an expanded variety of data forms, from spreadsheets to X-rays to videos. At the same time, as more of our daily activities generate information, access and security become paramount. “With big data comes big responsibility,” Naumova said. Here are some of the ways researchers are using big data for good.

FIGHTING FAMINE AND FOOD INSECURITY

Real-time monitoring of factors that contribute to food shortages—crop yields, weather and climate, fluctuation in food prices—can lead to interventions before a crisis. Naumova is leading a

study, funded by the federal Intelligence Advanced Research Projects Activity program, that combines data from multiple sources to forecast famine alerts and trends in malnutrition. This team is also developing ways to use global surveillance systems

to forecast infectious-disease outbreaks and their effect on famine.

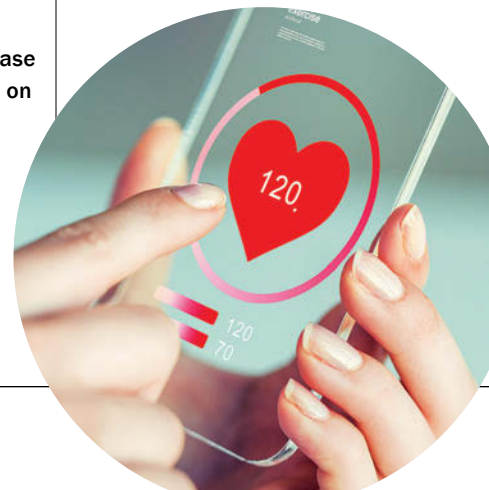
MINING DATA FROM LARGE-SCALE STUDIES

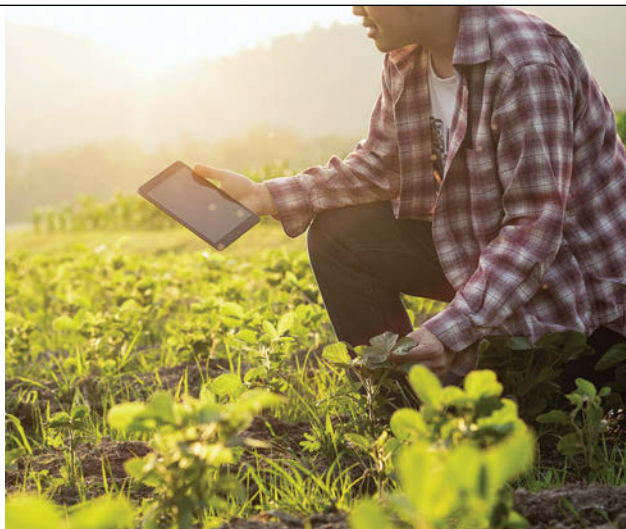
Advanced computing and analysis lets

researchers uncover significant patterns in epidemiological studies, and to pool the results of large numbers of studies. The Friedman School’s Renata Micha has analyzed individual-level records from two hundred and sixty-six surveys worldwide, to identify key challenges and opportunities for optimizing diets and informing policies on global health.

EXPANDING DATA COLLECTION WITH EVERYDAY DEVICES

Devices and apps now let average people record continuous health and nutrition data, including that from personal medical devices, such as glucose meters. Apps help people keep track of how environmental factors affect their medical conditions. Smartphones can also improve the veracity of self-reported data—instead of keeping written food diaries, study subjects can send photographs of their meals directly to researchers. Nicola McKeown, an epidemiologist at the Human Nutrition Research Center on Aging, and her team enlisted writers and public figures with large social-media followings to recruit more





than 14,000 potential participants for a study on dietary patterns.

IMPROVING PRODUCTIVITY

Graham Jeffries, N18, a postdoctoral fellow at the Friedman School, has used remotely sensed data and agricultural modeling to predict crop productivity in Brazil, and to quantify the effect of climate change on soy production. Cargill, the agricultural conglomerate, has developed an app that lets dairy farmers analyze their herds, and reports that Italian users increased milk production on their farms by nearly 12 percent.

PREDICTING AGRICULTURAL CRISES

Machine-learning can use past data to predict future conditions. After an analysis of a decade of weather and crop data in Colombia pointed to a looming 2014 drought, The International Center for Tropical Agriculture advised farmers to skip a rice-planting season—and saved them millions of dollars in lost crops. Recently, Friedman School doctoral

student Aishwarya Venkat, EG18, compared data on groundwater in California's overdrafted eastern San Joaquin Valley basin to understand trends in groundwater consumption, crop portfolios, and crop-switching practices during and after drought.

MONITORING FOOD SAFETY

Adjunct Assistant Professor Kenneth Kwon Ho Chui, MG05, NG05, NG09, and Naumova examined over 300 million hospitalization records to study the impact of USDA regulations for Salmonella testing in meat-processing plants. The World Health Organization's FOSCOLLAB platform integrates data on chemical use, growth conditions of microorganisms, and weather, to alert farmers and authorities to the possible presence of biohazards before they enter the food chain.

FOLLOWING FOOD THROUGH SUPPLY CHAINS

Manufacturers, distributors, and vendors can follow their products from farm to factory to store, while also

monitoring the condition of that food, such as temperature and shelf life. To help reduce food-safety hazards, Walmart can now remotely monitor the internal temperature of rotisserie chickens.

TRACKING OUTBREAKS

Analysis of social media sites, such as Facebook and Yelp, can improve recall efficiency by providing real-time information about the spread of food poisoning. In preparation for the Nutrition Data Summit at the Friedman School, a student-led initiative scheduled for October, a team of students plans a hackathon to analyze about one million FoodNet outbreak reports to look for seasonal and geographical patterns.

ENABLING BETTER CONSUMER CHOICES

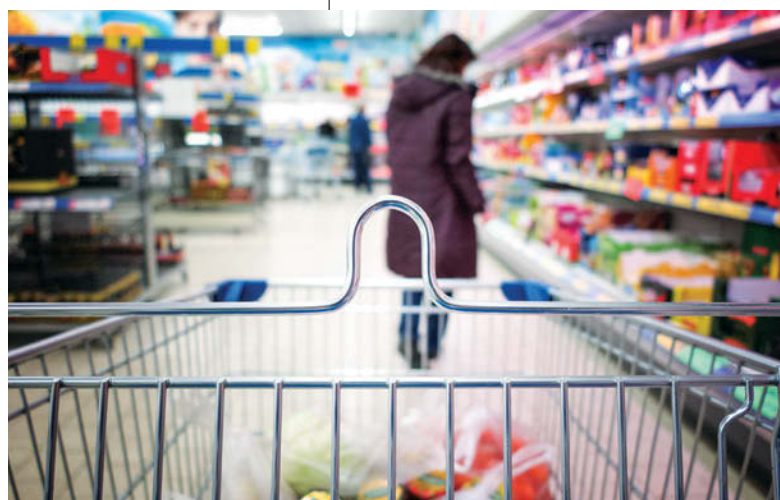
Mobile support tools can improve food choices at home and away from it. As an example, the FoodSwitch smartphone app, developed by the George Institute for



Global Health in Australia, lets users scan bar codes of packaged foods to obtain nutritional information and a list of healthier alternatives.

COMBATING OBESITY

In 2010, the Healthy Weight Commitment Foundation obtained a pledge from sixteen leading food companies to eliminate 1.5 trillion calories from their products by 2015. To document their efforts, they used a system that linked commercial data on individual sales with nutrient profiles and dietary intake data from the National Health and Nutrition Examination Survey. According to this tracking, a total of 6.4 trillion calories was eventually removed from the products.



Hold the Phone: This Tech Is Not Just for Weight Loss

How cell phones and fitness trackers can help fight hunger in developing countries.

BY TAYLOR McNEIL

MEAURING WHETHER PEOPLE in developing countries have enough nutritious food is vital work. It warns policy-makers when people are running out of food, and is critical to staving off malnutrition.

It's also time-consuming and expensive. Teams fan out, often to rural, isolated areas, to conduct interviews at homes, a monthslong task. But there might be an easier, less expensive way to do it, said Patrick Webb, Alexander McFarlane Professor of Nutrition at the Friedman School, who focuses on food insecurity and programs that try to alleviate it.

Webb's idea was a simple one. "What if cellphone usage were some reflection of the poverty level, which is often linked to the food security level?" he said. "If we were able to assess the ownership of cellphones, volume of calls, or money spent on recharging cellphone plans, could that be correlated with food security?"

Webb already had teams at twenty-one locations in rural Nepal, who had been doing the old-fashioned food-security surveys with more than 4,000 households for the past three years. Now he is seeing how cellphone data matches up with that on-the-ground information, controlling for other parameters that can affect poverty rates, such as

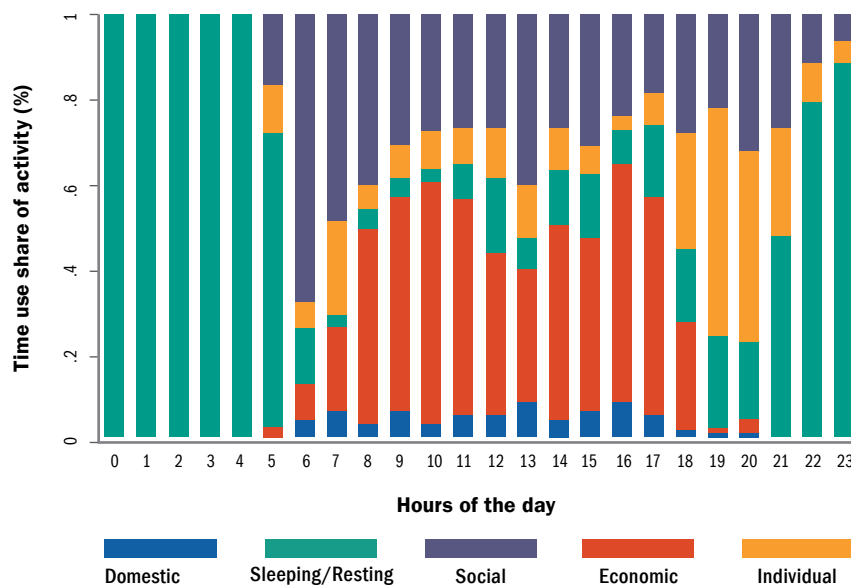
distance to market and road density. And the preliminary results, Webb said, show "there does seem to be quite a strong correlation between less cellphone use and more food insecurity."

On the flip side of nutritional intake is energy expenditure: the calories people burn as people go about their work and daily lives. If people are getting more nutrition but expending more energy, there's still a problem. Measuring energy expenditure of rural workers has never been easy—because it has required in-person observation by researchers—and it's rarely done even now.

But Webb and a colleague had a better idea: How about modifying fitness trackers, often used in developed countries by people trying to lose weight?

A start-up in Cambridge, England, devised such an accelerometer for Webb's team. It measures a range of motions typically employed by rural workers: hoeing, pounding, carrying buckets of water. A study is underway in India, Ghana, and Nepal, following men and women at different times of year; researchers are also charting their food consumption.

Initial results suggest the device works, Webb said: "It could become a new measurement tool for assessing if people are doing more work than they are able to cover for in their diets."



A chart shows how men in rural Ghana spent an average day. Accelerometers revealed that economic activities, such as farming, accounted for 51 percent of the calories they burned.



Treating Food as Medicine

With research showing that a healthy diet is often the best prescription for preventing many chronic illnesses, Dariush Mozaffarian, dean of the Friedman School, went to Capitol Hill in January. He was there to support the launch of a Food Is Medicine Working Group within Congress's House Hunger Caucus, which will explore policies to alleviate hunger and the burden it places on America's health and economy.

"We plan to work together with our colleagues to elevate

this Food Is Medicine conversation and to promote the need to address hunger as the health issue that it is," said Rep. Jim McGovern (D-Massachusetts), who organized the group. "My hope for this working group is that we are able to explore our nation's antihunger safety net to discover ways to make it even better."

The group will draw on expertise from academics, advocacy groups, and industry to find policies to improve the Supplemental Nutrition Assistance Program (SNAP), the Women, Infants, and Children (WIC) program, school lunches, and related programs.

"As a cardiologist, I've been thinking about food—and how food is missing from the health-care system—for twenty years now," Mozaffarian told lawmakers. "One in four dollars in the federal budget is spent on health care. One in five dollars in the entire U.S. economy is spent on health care, and that is only going to go up until we address food."

Mozaffarian said the United States could, for example, provide more nutrition education to physicians and nurses as part of their training and require Medicare and Medicaid to cover the cost of fruit and vegetable prescriptions, written by physicians, to encourage patients to eat more produce.

McGovern cited a paper, released by the Center on Budget and Policy Priorities, that showed low-income adults who participate in SNAP incur \$1,400 less in medical bills each year compared to people who qualify for SNAP but don't participate—about a 25 percent savings. "These early interventions have incredible potential to reduce hunger, reduce human suffering, and lower health-care costs, ultimately saving us money," McGovern said. "But more importantly they improve the quality of life for our fellow citizens."

11 YEARS YOUNGER

That's roughly the reduction in cognitive brain-age for people who ate about one-and-a-half servings of green leafy vegetables per day, compared to those who ate little or none, according to a study in *Neurology* from the Jean Mayer USDA Human Nutrition Research Center on Aging.





#MeToo in Aid Agencies

A new report suggests that sexual assault is pervasive within the ranks of humanitarian groups. **BY MONICA JIMENEZ**

EVEN AS THEY are providing humanitarian assistance to others, many aid workers are experiencing sexual harassment and assault themselves, with the attacks most often coming from colleagues and security officers, according to a new study. “In terms of preventing and responding to sexual harassment and assault against aid workers, this report finds that the sector as a whole is failing in its duty of care to aid workers,” wrote Dyan Mazurana, a research director at the Friedman School’s Feinstein International Center, in the 66-page report summing up the results of the study.

Mazurana, who is also an associate research professor at the Fletcher School, began looking into the problem two years ago, noting

that no one had enough information about what was happening. For the study, she and doctoral candidate Phoebe Donnelly, F14, interviewed 30 male and female humanitarian aid workers. They also reviewed 78 academic and media reports, as well as results from surveys by the Women’s Humanitarian Network in 2016 and Report the Abuse in 2017, which combined had more than 1,400 respondents. This research spanned 70 international aid organizations, including the United Nations, government agencies, and contractors.

Their study found that the “vast majority” of survivors of sexual assault were women. It also found that LGBT humanitarian workers suffered sexual-identity harassment, blackmail, threats, and assault. Mazurana said a larger sample size is needed to estimate the specific rates of abuse, but her research indicated that the problem is pervasive. For example, 55 percent of respondents to the Women’s Humanitarian Network survey reported persistent romantic or sexual advances, and 48 percent reported unwanted touching. “It spans the whole scope of people,” Mazurana said. “Volunteers with very little education, medical doctors, people very high up and low down.”

As for the perpetrators, the study found that they are mostly men—and that they are more likely to be a victim’s colleagues than not. The extra challenge of being harassed or attacked from within a humanitarian agency was expressed by one interviewee, a new project manager who received sexually threatening texts. “I was in tears for several hours,” reported the woman, who was not named to protect her identity. “I was paralyzed because I knew it was someone from my own team, my national team.”

Perpetrators also tend to be supervisors or in higher-level positions than their victims, or they are hired security providers. “The more power imbalance

you have, the more vulnerable people are going to be,” Mazurana said. “Security officers have the weapons. They are the people who can make life very unsafe.” The fact that the threat often comes from the very people tasked with protecting workers makes it more difficult to address, with most existing guidelines assuming sexual assault will be perpetrated by someone outside the agency.

The culture of humanitarian aid work may contribute to the problem. The stress of the job can lead to destructive coping behaviors, such as alcohol and drug abuse. At the same time, a “macho form of masculinity” dominates the industry, Mazurana said. “The hard-drinking, smoking,

risk-taking guy who has all the stories to tell is held up as a model, when in fact that kind of person is dysfunctional and not handling stress well.”

Another factor is the environment. Humanitarian workers are often stationed where the rule of law has broken down, conflict is ongoing, and the connection with the outside world is tenuous—and where colleagues not only work but live together in a self-contained bubble. Mazurana said these characteristics are similar to other locations where high levels of sexual harassment and assault have been found, such as the military.

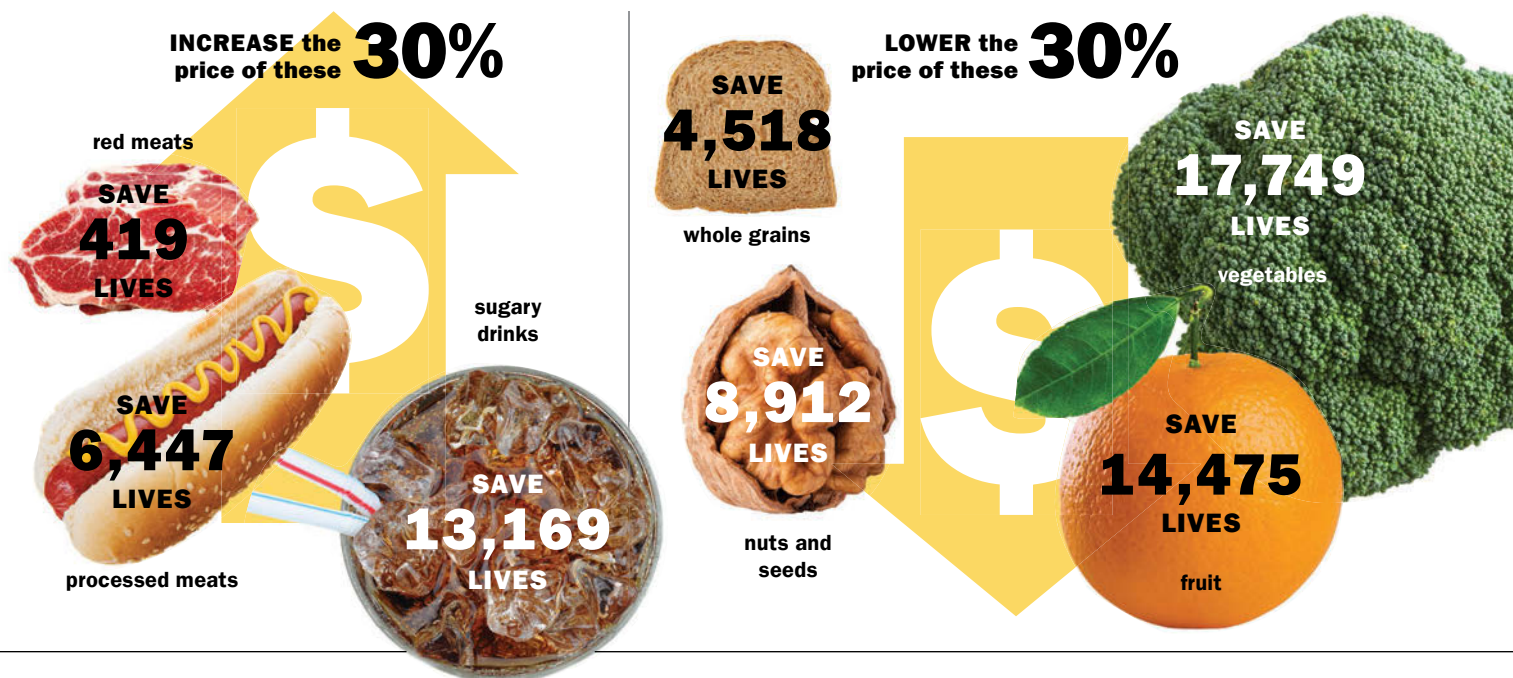
Some of these factors may take a long time to change, but there are

actions agencies should take immediately, Mazurana said. Aid agencies need to establish formal systems to prevent, report, investigate, and respond to sexual harassment and assault, and enforce those policies, she said. They also must hold perpetrators accountable and support survivors—including protecting them from retribution when they report incidents, she said.

More in-depth studies should follow, Mazurana said, but she hopes the report will inspire agencies to act. “We can’t have people assaulting and harassing others and causing people to leave their jobs,” she said. “We need really highly qualified, good men and women in these positions.”

Adjusting the Price of These Seven Foods Could Save 63,268 Lives Every Year

Friedman School researchers estimate that changing the price of some foods by 30 percent would prevent 63,268 deaths from stroke, diabetes, and cardiovascular disease in the United States each year. (Tweaking the price of the foods by just 10 percent would prevent 23,174 deaths each year.) The idea behind the study, published in *BMC Medicine*, is that taxing the bad foods and subsidizing the good would prompt Americans to shop and eat healthier, with big results.



Feeding people by will be a big The solution could

Insects are nutritious, delicious, and good for the environment. They might also prove key to helping feed an increasingly hungry planet.

BY JULIE FLAHERTY

“I ALWAYS SAID I WOULD never eat a bug,” Carnie Wilson said, scrunching up her face, her voice catching in her throat. Wilson, a contestant on a celebrity edition of the Food Network show *Chopped*, had just been challenged to create an appetizer with salmon, avocados, sweet tea—and flour made of ground-up crickets. She looked at the bag of light brown powder with horror.

Soon, though, she was thinking of ways to work with it. “If I combine this with a little brown sugar and a little

9 billion 2050 problem. be tiny.



cayenne pepper,” she said, “it might be good.”

Crickets, mealworms, and other insects are slowly edging their way into American diets: as the stunt ingredient in a TV cooking show, as avant-garde snack foods, even as a pantry staple for forward-thinking home cooks. But proponents of entomophagy—the formal name for bug consumption—are happy to point out that the United States is actually behind the times. Two billion people around the world

eat insects, and have for thousands of years. With good reason: Insects tend to be high in complete protein, low in saturated fat, and are good sources of vitamins and minerals.

But while insects hold the promise of being a superfood, there is a lot we still don’t know. That’s why Joel Mason, a scientist at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts, recently convened a working group of experts from academia, industry, and

government. They’ll work together to outline the most pressing research questions on insect nutrition and the role they should play in the American diet. “It is true that insects have been used by many cultures as food stuffs for millennia,” Mason said. “But we really know very little about the health impacts of insect-based foods.”

Six people from the edible-insect industry signed on to Mason’s group, called the Tripartite Organization for the Promotion of Insect Consumption,

as did six academics from Tufts and other universities, and six scientists and governmental managers from the USDA's Agricultural Research Service (ARS). The group's agenda includes looking at cricket husbandry, processing, and regulations; "barriers to acceptance"—in other words, the "yuck" factor—and, most important of all, what eating crickets long term does to a person's health.

Mason, a cancer researcher with a personal interest in sustainable food systems, is eager to find out—and fast. The global population is expected to reach nine billion people by 2050, and feeding the world will require doubling our food supply. According to a 2013 U.N. Food and Agriculture Organization report, farming insects could be a way of meeting that need. Crickets, it points out, are five times as efficient as cows at converting their feed into bodyweight. Plus, about 80 percent of a cricket is edible, compared to 40 percent of a cow. They emit a fraction of the greenhouse gases and ammonia that cattle or pigs do, and need far less water and land.

Environmentally, that's very attractive. But nutritionally, are insects what they are cracked up to be? And will the world's swelling population, which increasingly demands meat, eat them?

Although beetles, caterpillars, bees, wasps, and ants are the most commonly consumed insects globally, the cricket seems to be the crown prince of American entomophagy, in part because powder made from crickets can be incorporated somewhat unobtrusively into foods. In recent years, farmers that raised crickets for the pet food industry began separately growing and milling crickets for human consumption, and their powders began turning up in specialty power bars, granola, and spaghetti sauce.

Marketers of cricket foods are quick to point to a long line of health benefits—some with insufficient evidence—but there are already signs that insects stand apart from other food groups.

One unpublished analysis found that crickets were extraordinarily high in B12, "much higher than the sources we normally consume," Mason said.

The fiber in crickets is also intriguing. The exoskeleton is made up of a compound called chitin, which is also found in bivalves. (In fact, people with shellfish allergies may be sensitive to crickets, which is why many cricket products carry an allergen warning.) "It's very different from the fiber we're used to getting in plant-based foods," Mason said. That could mean it has more health benefits—some cricket companies already tout chitin as promoting a healthy gut microbiome. On the other hand, some evidence points to chitin binding up certain micronutrients, impeding the body's ability to absorb them. "Not only do we have to look at potential benefits," Mason said, "but we have to look at potential negatives."

John Finley, the ARS's national program leader for human nutrition and a member of the working group, said that the USDA is interested in exploring insects for sustainability and nutrition, but is taking a firmly neutral stand at this point. "This is an emerging area," he said. "The problem is it is emerging without a lot of strong data as to what it supplies nutritionally. What are the variables in terms of nutritional composition? What is the basis for why we should be feeding insects? Is it truly sustainable? Is it economically viable? There are a number of questions there."

The ARS already knows a lot about bugs—as crop and livestock pests to be reckoned with. But for this working group, ARS scientists are putting their deep knowledge of entomology to a different use. Two ARS researchers in Mississippi will be creating a non-proprietary cricket powder for use in experiments. "It will be analyzed so that we know exactly what its components are," Mason said. A scientist in California with expertise in food processing will look at the best ways to make the powder shelf stable, and to optimize its nutrition.

As for Mason, his ultimate goal is to

study whether cricket powder affects the chance of developing cancer. A typical Western diet—high in red and processed meat and animal fat—is associated with a higher risk of colon cancer. "If you fully integrate insect foods as a protein in the diet," Mason said, "maybe it wouldn't convey as high a risk."

One member of the group, Jarrod Goldin, cofounder and president of Entomo Farms in Ontario, Canada, said he is excited to have cricket nutrition put to the test. With 100 million "head of cricket" at any given time—the *Gryllobates sigillatus*, or tropical house cricket, is his species of choice—his farm is the largest of its kind in North America.

He and his brothers began the business in 2014 with 5,000 square feet of retro-fitted chicken barns. Now they have 60,000 square feet of "cricket condos" where his herds live out their full, seven-week lives before being frozen in a 3,500-square-foot processing facility. He's now looking for 200,000 square feet to meet skyrocketing demand. "We are desperate for space," he said.

Some big players in the food industry are already helping bring insects to a broader population, he said. In March, Canada's largest grocer, Loblaw, announced it would sell cricket powder under its house brand, President's Choice. A couple weeks later, IKEA's research lab announced that it was working on creating a mealworm-based version of its iconic Swedish meatballs. "It's still a nascent market, but it shows you where this is going," Goldin said. "It's not just one start-up in New York or a hippie in California. It is starting to normalize."

But while Goldin says the only thing holding the market back is supply, there is no ignoring the 800-pound *Gryllobates* in the room: Many Americans are simply repulsed by bugs. Goldin, who sprinkles cricket powder on his yogurt, bristles at the suggestion that eating insects is icky. He wants to change that attitude.

The Incredible, Edible Cricket

Judging by the wide variety now available, cricket-based snacks may be a step on the path to embracing insects as food. Ten staffers from our office put a sample of products to the test.



DON BUGITO CHILE-LIME CRICKETS WITH PUMPKIN SEEDS

NUTRITION FACTS: 47 calories, 5g total fat, 2g total carbohydrate, 7mg sodium, 4g protein
TASTING NOTES: Despite a slight “ick factor” from whole crickets, most appreciated “lots of crunch” and “notes of vinegar” and “spice.”

JIMINY CO. CRICKET CRUNCH GRANOLA

NUTRITION FACTS: 130 calories, 7g total fat, 13g total carbohydrate, 35mg sodium, 6g protein
TASTING NOTES: A near-universal favorite that tasters found “sweet” and “actually delicious.” “Would put on my yogurt,” said one, noting it’s “probably a good gateway to bugs in food.”

CHIRPS SEA SALT TORTILLA-STYLE CRICKET CHIPS

NUTRITION FACTS: 130 calories, 7g total fat, 15g total carbohydrate, 140mg sodium, 4g protein
TASTING NOTES: With pleasant “earthiness and substance,” tasters found these similar to “a regular, healthy chip.” “Would eat with salsa,” said one.

CHAPUL DARK CHOCOLATE COFFEE CAYENNE CRICKET PROTEIN BAR

NUTRITION FACTS: 180 calories, 9g total fat, 18g total carbohydrate, 180mg sodium, 10g protein
TASTING NOTES: The panel detected no “cricket taste,” though some found the coffee and cayenne “overpowering.”

SEEK HONEY + SEEDS SNACK BITES WITH CRICKET FLOUR

NUTRITION FACTS: 200 calories, 10g total fat, 23g carbohydrate, 45mg sodium, 8g protein
TASTING NOTES: After an initial “bitter” note, most found these “delicious,” with “strong flavors” of dates and sesame, and a “nice, mildly sweet finish.”

“Foods that cause obesity, diabetes, sarcopenia, early death—*those* are icky foods,” he said. “But foods that make you live longer, that prevent heart disease, are great foods.” His website offers recipes and tips to ease consumers into this new food group. Bothered by the legs on the whole roasted crickets? They are easily picked off.

Goldin believes more than enough people looking for healthy, sustainable food options will give insects a try. Cricket powder could be the gateway product for many of them, said Jessica Manly, N18, a graduate of the Friedman School’s Agriculture, Food and Environment program. “I’ve been putting it in my smoothies for a couple of years now,” she said. She also uses it in her homemade veggie burgers and blueberry pancakes.

As someone who eats little meat, she

was first attracted to cricket powder as a sustainable protein choice, and thinks it promises significant environmental benefits. Still, she has questions. Worldwide, most of the insects people eat are collected in the wild, not farmed, so it’s hard to know exactly what the environmental effects would be of mass production. If crickets are raised on the same grain-based foods that chickens eat, their environmental footprint goes up; finding a way to raise them on consumer food waste would be better. She’s also concerned about affordability—she currently pays \$20 for a one-pound bag of cricket powder. “That could be cost-prohibitive for many people,” she said. She’s hopeful scaling up farming of crickets and other insects—known as “minilivestock”—will bring the price down.

Manly is fascinated by the many

factors that lead one culture to chew on insects, and another to eschew them. Her own comfort level is evolving. “Cricket powder is ground up; it’s like flour, so I didn’t have any type of repulsion,” she said, adding, “I’ve never tried mealworms whole. I think I would have a harder time with that, um, texturally.”

If the crickets fulfill their promise as nutritional powerhouses, Mason’s group plans to look into what kind of marketing could persuade Americans to look at insects in a new, gustatory light. That’s what happened with *Chopped* contestant Carnie Wilson.

Once she got past the “eww” stage, she impressed at least one judge with her salmon in a sweet and spicy cricket-flour crust. Even an entomophobe would have to admit, she did make it look pretty tasty. **TN**

Building a BRIGHTER FOOD FUTURE

BY MONICA JIMENEZ AND MOLLY McDONOUGH

ILLUSTRATION BY SAM FALCONER

WELCOME TO THE FUTURE OF FOOD: A mother looking for a healthier snack for kids builds an all-natural popsicle empire; a recent graduate sitting in a rideshare envisions the access economy tailored to culinary start-ups; a pharmaceutical executive takes a chance on the fermented tea brewing in her closet. Instead of trying to revamp the food system from the top down, entrepreneurs are building innovative solutions from the ground up.

Smart ideas are bubbling up everywhere, as Danielle Nierenberg, N01, learned in her work with an environmental organization before founding the think tank Food Tank. “I was seeing on-the-ground innovative solutions—in kitchens, in board rooms, in town halls, in fields—that could be scaled up and out,” she said.

Why the boom in food innovation now? “The interest in food is high because we’ve collectively

backed ourselves into a food-supply corner that values high-volume and low-cost over nutrition,” said Rachel Cheatham, N05, NG08, whose company Foodscape helps businesses develop healthier products. With a growing awareness that our environment and our health are suffering the consequences, we need to make a change. Food entrepreneurship is about making it. That means opportunity aplenty for passionate graduates with food-related degrees, and for professionals longing to reorient their skillsets.

By creating a new hub for entrepreneurship, the Friedman School is leading the way. In the pages ahead, we follow excited entrants in the school’s first start-up competition, offer advice from entrepreneurship experts, and profile alumni who have founded businesses that are changing the way we eat.



Pitch Perfect

Inside the first Tufts nutrition entrepreneurship competition. **BY MONICA JIMENEZ**

PITCHING YOUR START-UP to potential investors is like a first date. “The goal is to get a second date,” Tina Weber told her audience at the Friedman School. “You want to give them just enough; you want to hide the crazy a little bit; you want to emotionally hook them.”

It was late March, and Weber, a Tufts lecturer in entrepreneurship and business planning, was speaking to a group of about ten up-and-coming entrepreneurs. Twenty-four teams had submitted their business ideas to the inaugural Tufts Food and Nutrition Entrepreneurship competition, sponsored by the Friedman School in conjunction with the Tufts Gordon Institute and open to the entire university community. The eight teams in the room were finalists looking for pointers on pitching their ideas.

The finalists—a combination of students, alumni, faculty, staff, and

partners from outside the university—represented a diverse array of ideas. Robin Shrestha, N15, project manager at the school’s Feed the Future Innovation Lab for Nutrition, and emergency medicine physician Sapana Adhikari cofounded Smartbakery to provide healthy, affordable meals to schoolchildren in rural Nepal. Xinge Ding, N18, Yan Bai, AG09, F16, Ying-Ju Li, F16, and Perng-Hwa Kung, an MIT alum, proposed a nutrition app, OptDiet, targeted to the Chinese market. Silvia Berciano Benitez, N21, and Alessandra Verme, N19, with Professor José Ordovás, director of the Nutrition and Genomics Lab at the Jean Mayer USDA Human Nutrition Research Center on Aging, were pitching BabyGen, an app that tailors nutrition recommendations for pregnant women based on genetic tests.

In two weeks, the teams would present their companies to a judging

panel of fourteen entrepreneurs, venture capitalists, and food executives. While finalists scribbled notes, Weber offered tips for making the most of their five-minute pitches: specify your target market; go easy on text and heavy on images in PowerPoints; and try to offer a demo or prototype. At stake were three prizes—for \$2,500, \$7,500, and \$15,000—to help winners put their ideas into action. The PepsiCo Foundation and Bunge were platinum sponsors of the competition.

When Weber asked for volunteers to practice, Ulrich Dossou stood up. Visiting his home country of Benin a few years ago, he said, he heard farmers talk about the difficulty of getting their products to market before they spoiled. So Dossou, a Suffolk University graduate, and his business partner, Dylan Anderson-Berens, N17, developed a multipart solution to the problem, including a mobile app linking small producers with pre-harvest finance opportunities, weather and price information, advisory services, cold-chain services, and buyers. Together with their teammates Lauren Betz and Guy Kodjogbe, they call their company GleTech—“Gle” means “farm” in the Fon language of southern Benin.

Some 80 percent of Benin’s 10.3 million citizens make a living in agriculture, usually subsistence farming. “We’re tackling issues of food insecurity, market failures, and poverty in West Africa, where the population is exploding. I can’t think of anything



Left: The OptDiet team proposed an AI-based nutrition app targeted to the Chinese market. Opposite page: Chloe Andrews, N19, made the business case for Sustain Energy Gel.

more exciting,” said Anderson-Berens, who completed the Friedman School’s Agriculture, Food and Environment program and recently earned a management certificate at the Harvard Extension School. “It’s just a thrilling puzzle for us to try to create a sustainable business model that really helps underserved smallholder farmers.”

That kind of innovative, big-picture thinking is what the Friedman School’s growing emphasis on entrepreneurship is all about. “Entrepreneurship for both the social good and the building of successful enterprises is now a focus of the Friedman School curriculum and interactions with nutrition entrepreneurship thought leaders around the world,” said Dennis Steindler, director of entrepreneurship education at the school. The Friedman School aspires to build a Silicon Valley for food innovation on four pillars: The new Nutrition Entrepreneurship education program, partnerships with major food-business accelerators, a growing network of experienced advisers, and a planned Innovation Council linking agriculture,

research, health care, and other sectors.

The entrepreneurship competition is a key part of the initiative. “It not only encourages people to have big ideas that could have potentially huge impact, but also demonstrates a framework to advance them and move them toward fruition,” said Ed Saltzman, academic dean. And to build a healthier, more equitable, and sustainable food system, new ideas are needed now. “If we don’t have innovation, we’re basically going to be held captive to whatever is being offered to us.”

The Friedman School’s Behrakis Auditorium buzzed on April 12, the day of the competition. In the lobby and hallways, finalists quietly ran through their presentations, fielding good-luck wishes from faculty. Others checked out the big screen and podium, chatting nervously with the family and friends who had come to cheer them on. After the crowd settled into their seats, Dean Dariush Mozaffarian offered opening remarks.



“Entrepreneurship is not the same as business or profit. It’s about bringing together a new idea with the intellectual resources and human resources and capital resources to get it done,” he said. “Whatever any of you want to do in the world, whether it’s social, for-profit, or government, if you’re losing money, eventually you’ll shut down.”

Then it was time for the seven teams to present and take questions from the judges. (The finalist behind the eighth team, a service to decode food aroma called AroMenu, was unable to attend.) First to take the stage was engineer Patrick Mulcahy, EG17, there to pitch N2 Appliance, a refrigerator-like device

Friedman School business mentors and advisers offer their lessons for start-up success.

Be Ready to Adapt

“Budding entrepreneurs should not fall too much in love with their idea. The successful entrepreneur is adaptable—to better ideas or product improvements; to changing markets; to changing tastes; to changing technology; to changing supply chains or production costs; and to better leadership. Investors will almost always fund a proven management team over a start-up entrepreneur with no track record of building a company.”

—Michael L. Blau, Esq., Partner, Foley & Lardner LLP

Find Energy to Persevere

“You need to remain focused on the purpose, which is more than just self-gratification or enrichment, but rather, how you can benefit someone else. And you need to have strong self-discipline and courage to keep going, even when others tell you to stop.”

—Bill Layden, Founder and EVP, FoodMinds

that uses nitrogen gas to keep baked goods fresh. He was followed by Chloe Andrews, N19, a dietetic intern at Tufts Medical Center, who pitched healthful Sustain Energy Gel for athletes, packed in biodegradable seaweed pouches.

Xinge Ding opened her pitch for OptDiet by telling judges, “I’m here today to offer you a sexy China investment story.” She explained she had been working with patients in Chinatown during an internship at Tufts Medical Center, when the idea for an AI-based diet app driven by user feedback started to germinate. “Their diet is different from Americans’, but not in a good way,” Ding said. She and

Yan Bai, who is pursuing a Ph.D. in food policy and nutrition, decided “to get back to our communities, not only in Chinatown, but in China.”

Sapana Adhikari of Smartbakery told the panel she and Robin Shrestha were visiting their native Nepal in 2014 to help set up a school library when they saw students eating processed snacks in place of proper lunches—many students lived too far away to safely bring food to the school, which had no refrigeration. The result was high rates of anemia, vitamin A deficiency, poor performance, and dropouts. “The principal asked, ‘Can you help me feed my students?’” Adhikari recalled.

The pair came up with an idea for a mud brick oven where local women would be paid to bake “smart bowls”—vitamin-fortified bread bowls filled with locally-grown vegetable curry. The bowls would be 22 cents, cheaper than processed snacks, and would create no waste. “This would have a broad societal impact: improving health and education for rural populations, employing women, and encouraging a healthy food culture,” Adhikari said. She promised judges the project could be done for \$14,999—one dollar less than the first-prize award.

Next up was an app called Picture This, pitched by Friedman School post-doc Eleanor Shonkoff. She was backed by Friedman School faculty Christina Economos and Erin Hennessy, as well as Karen Panetta, a dean at the School of Engineering, and engineering doctoral student Shreyas Kamath. Picture This would use artificial-intelligence technology to estimate users’ caloric intake based on smartphone photos.

After the teams from GléTech and BabyGen closed out the presentations, the judges retreated to a private room to deliberate, while the finalists and the audience headed down the hall to wait.

Giddy with relief, the finalists reviewed their performances with their teammates, praised each other’s presentations—and waited. After about half an hour, the judges filed in, smiling. The crowd formed a semicircle to hear the results.

First up was the \$2,500 prize, for the company voted most popular by the audience, which went to BabyGen. “I feel immensely grateful just to be a finalist,” Berciano said. “To have the support of the audience really means a lot to us.” The team has launched a



Ask Yourself: Will Customers Pay?

“Often, people will start a business because they themselves have a specific problem or challenge. But I suggest talking to other people who have the problem, and validating two things: first, whether it’s a problem that a significant number of people have—make sure it’s a big problem you’re solving—and second, find out whether people are prepared to pay for a solution.”

—Andrew Ive, Managing Director and Partner, Food-X

Hook Your Audience. And Fast.

“When it comes to pitching, you’ve got to get your audience engaged. The first thing to do is ask them a question. The thing that you learn along the way in pitching—especially when you’re pitching to investors who get pitched to all the time, is that you’ve got to hook them in right away. If it’s going to take you five minutes to explain something, your idea is too hard.”

—Wendy Behr, VP, Global R&D, Keurig Green Mountain



Above: A judging panel of entrepreneurs, venture capitalists, and food executives determined the winners. Right: Edward Saltzman with winners Robin Shrestha, N15, center, and Sapana Adhikari. Opposite page: Eleanor Shonkoff and Shreyas Kamath presented Picture This, which uses smartphone photos to estimate caloric intake.



beta version of the blood and genetic tests that will be used in the app and already has twenty-eight customers.

For the \$7,500 prize, the judges had a surprise: a tie between GlēTech and OptDiet, for \$3,750 each. GlēTech's solution for Benin farmers "had excellent proof of concept and very good value chain impact," one judge observed. Anderson-Berens said he and Dossou plan to invest their winnings into their platform and operations. OptDiet was "a great match of both science and technology," the judge said, "and we think it really leveraged well the Tufts Friedman brand in China." Bai and

Ding were excited to meet with potential investors—including a judge who expressed interest at the reception. "This entire competition and hearing the other contestants really inspired us to move forward," Ding said. "We're really passionate about this project and we're convinced we can make a difference."

After the judges congratulated all the finalists on their impressive work, it was time to announce the winner of the \$15,000 first prize: Smartbakery. Their idea for smart bowls to feed schoolchildren wasn't high-tech, but the simple solution was powerful, a judge said. "Innovation doesn't have

to be hard—innovation, and entrepreneurship, can be quite easy—and that's why we chose this." The panel presented an oversized check to Shrestha and Adhikari—the \$15,000 crossed out and replaced with \$14,999, the exact amount they had said they needed.

Adhikari said the money will cover all construction, materials and labor costs for the first Smartbakery. She was already planning another trip to Nepal this summer. "To have this support really means a lot to us," she said. "It's such a great opportunity, and it's wonderful that they're encouraging entrepreneurship here at Friedman." **TN**

Follow Your Passion

"I think having a passion for food is an enormous benefit. My first offer out of school was to work for Procter & Gamble in their soap division. Even though I liked the company, I turned them down. I just wasn't that interested in working on soap. Then they offered me the opportunity to work on coffee, which was fantastic. You're going to enjoy life a lot more if you can make your passion part of your career."

— Carlos Barroso, Senior VP, Global R&D and Quality, Campbell Soup Company

Become a Nutrition Expert

"Food entrepreneurs should be nutrition entrepreneurs, too. Products need to be created following a deep understanding of ingredients and their impact on people's bodies. I really suggest that all entrepreneurs interested in the food business broaden their perspective and start learning, working closely, and integrating with specialists in nutrition and medicine."

— Jimena Florez, Founder and CEO, Chaak Health Snacks

Entrepreneurship in Action

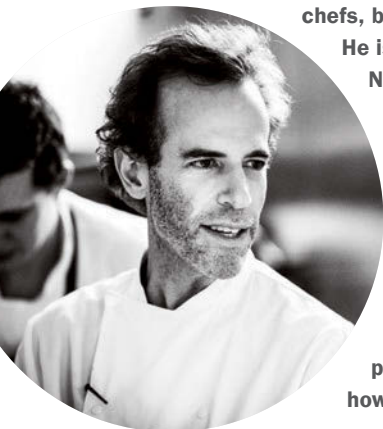
Meet the Tufts alumni behind some of today's most innovative food businesses. **BY MOLLY McDONOUGH**



JUICE PRESS

In 2013, Michael Karsch, A90, F91, shuttered his successful hedge fund firm and took a chance on a small juice chain. At the time, Juice Press—a company producing bottled, cold-pressed juices—ran only four NYC storefronts, but “It had all the trappings of an early cult following,” Karsch said. He became the company’s lead investor, the chair of its board, and guided it to focus on transparency, form a broader nutrition platform, and “expand the definition of what bottled juice can be.” Today, Juice Press operates 80 storefronts and is still growing.

BLUE HILL / BLUE HILL AT STONE BARN



Dan Barber, A92, is considered one of America’s best chefs, but he does much more than lead a kitchen. He is chef and co-owner of Blue Hill restaurant in New York City, as well as upstate’s Blue Hill at Stone Barns, which is paired with an on-site educational center and working farm. He’s a cofounder of seed company Row-7 Seeds. He’s an acclaimed author. And he’s a tireless sustainability advocate, which comes with the territory as a chef. “It just so happens that the road to better food is the same one that leads to better ecology,” he said. “In the pursuit of exceptional flavor, you’re determining how food is farmed and how the world is used.”

CHLOE’S SOFT SERVE FRUIT CO.

When Chloe Epstein, J96, founded Chloe’s Fruit, she was a lawyer with no experience in food or entrepreneurship. But she did have a freezer full of overripened bananas, plus an “intense sweet tooth and a commitment to a healthy lifestyle,” she said. Unable to find a nutritious stand-in for her fro-yo addiction when she became pregnant, Epstein created the wholesome soft-serve she was craving—“made from just fruit, water, and a touch of cane sugar”—and soon, Manhattanites were lined up outside her shop craving it, too. The foray into popsicles that followed helped Chloe’s Fruit land shelf space in over ten thousand grocery stores nationwide.



HEALTH-ADE KOMBUCHA

Daina Trout, N07, MG07, left a corporate pharmaceuticals career and launched a company with \$600 and a plan to cultivate SCOBY—a bacteria and yeast culture—to homeopathically combat hair loss. Kombucha was a byproduct of the work, but it quickly gained its own following. From a tiny farmers’ market stand to a 140-employee company, Trout and her partners have always focused on making Health-Ade Kombucha with natural fermentation in small-batch glass jars—as they first did at home. Their other secret to success? “The hustle,” said Trout, the company’s CEO. “We lacked experience, but we had a whole ton of drive.”



THE FOOD CORRIDOR

Not everyone has a life-changing revelation while sitting in an Uber. But when Ashley Colpaart, N10, used the ride-sharing service for the first time, she had a breakthrough on her observation that start-up food businesses needed kitchen space. “I started thinking about the access economy and how infrastructure and resources have become more important than ownership,” she said. Applying that principle to local food systems, Colpaart founded The Food Corridor, a virtual hub that matches food start-ups with shared kitchen spaces. Now she’s a CEO and food entrepreneur who’s solving real-world problems for other entrepreneurs. (“It’s very meta,” she quips.)

BRANCHFOOD

Like so many food entrepreneurs, Lauren Abda, N12, longed to get involved but didn’t quite know how. So she started a meetup group in Boston—before long, she was leading a community of like-minded folks seeking mentorship, advice, and teamwork. From there, Abda founded Branchfood, the largest community of food entrepreneurs in New England. Through its co-working space, educational programming, and

mentorship—as well as its angel investing network, Branch Venture Group—Branchfood helps

“people with fantastic ideas and unique skill sets to become an integral part of the food system,” Abda said, “and change it for the better.”



MOTHERSHIP

If you’ve experienced what Martelle Esposito, N10, calls “health information overload” after consulting Dr. Google, you’re not alone. The entrepreneur worked for years in public health and, inspired by her own personal and professional experiences with the “the triumphs and challenges of parenthood,” decided to create a digital platform and community that connects parents with personalized support and resources from other parents who are also health

professionals. Mothership replaces the judgment and confusion often encountered online with empathy and empowerment, said Esposito, president and CEO. But the key is that it still meets millennial parents right where they are: “in a digital environment.”



AIRCHIPS USA

“There are a lot of chip brands out there,” said Ryan Egger, A14, N17, “but if you look at the snack-food market, everybody’s looking for something healthier.” And within healthy, one key word stands out: protein. When Egger—who’d been working as a VP for his grandfather’s high-protein food company Bariatrix Nutrition—learned of a new European method to boost the protein content of chips, he jumped on the chance to import the technology, cofounding AirChips USA and serving as its president. After success in B2B sales, the company was acquired—but

Egger remains involved and is excited to “grow AirChips as a consumer-facing brand.”



FARMER’S DAUGHTER CONSULTING

“I’d always wanted to be my own boss,” said Amy Myrdal Miller, N97. So after twenty years of working for other people, she channeled her life experiences—growing up on a farm, planning conferences at a culinary college, directing health research and marketing for food companies—into a marketable product. The company she founded, Farmer’s Daughter Consulting, offers agriculture, food, and culinary communications expertise—and gives Myrdal Miller the variety she craved in her work. “I’m the president, CFO, chief marketing officer, and brand ambassador,” she said. “No two days are ever the same.”





Hard Work If You Can Get It

Livelihoods programs promise refugees a path to self-reliance, but how much they can truly help remains an open question. **BY HEATHER STEPHENSON** ILLUSTRATION BY ALEX NABAUM

SETTING UP TENTS AND DISPENSING FOOD, WATER, AND MEDICAL CARE isn't a sustainable way to address today's refugee crisis. With more than 22 million refugees displaced around the globe—and many unable to return home for decades, if ever—such handouts require massive funding, which donor countries have proven unwilling to provide indefinitely. They also ignore the desire of many refugees to be

self-reliant. Meanwhile, giving direct aid or cash assistance to refugees may encourage resentment in host countries, where locals can be worse off than the newcomers seeking asylum.

One increasingly popular alternative is to help refugees get jobs or start

businesses in their host countries so they can pay their own way. These efforts, called livelihoods programs, often include job training and opportunities for citizens as well, to boost both social acceptance of refugees and economic development of host nations.

“Livelihoods programs sound so appealing—help refugees become self-sufficient, reduce aid costs, and help the host countries, too,” said Karen Jacobsen, the Henry J. Leir Professor in Global Migration at the Fletcher School and director of the Refugees and Forced Migration Program at the Friedman School’s Feinstein International Center. “But we don’t have enough evidence to prove they work.”

The biggest challenge facing livelihoods programs is that many host countries do not allow refugees to work legally, despite international conventions protecting access to work. And even if refugees are allowed to hold jobs, they may find local opportunities are limited or employers are unwilling to hire them. Critics also argue that the jobs offered are often low-paying and that the governments of developed countries promote them in hopes that refugees will stay in their initial countries of asylum rather than migrate elsewhere, such as to Europe.

Still, efforts to get refugees working abound around the world. Starbucks has committed to hiring 10,000 refugees in 75 countries over the next five years. In late 2016, the furniture retailer IKEA pledged to open production centers in Amman, Jordan, that will eventually employ 400 people—half Syrian refugees and half local Jordanians—to make goods like rugs and blankets. IKEA has so far hired about 100 women, paying at least the Jordanian minimum wage of \$310 a month. The start-up NaTakallam (“we speak” in Arabic) was launched in 2015 to provide work to Syrian refugees in Lebanon, Egypt, Turkey, and other countries. The business allows Arabic

language learners, including students from Tufts, to connect with refugees over Skype or WhatsApp to practice their conversation skills, for a fee of about \$15 an hour. The start-up, while small, is having an effect—it says it has about 60 instructors, who collectively earned more than \$110,000 between 2015 and May of this year.

Livelihoods are also a focus for international aid agencies, including the Office of the United Nations High Commissioner for Refugees (UNHCR), which created a dedicated livelihoods unit in 2008. Since 2011, the UNHCR has partnered with a university in Ecuador on a business

and what problems they create. She said we need to know the proportion of refugees they help in a particular context, and which refugees are unable to access these programs.

The report also argues that a focus on hard skills and qualifications can overlook other barriers refugees face in obtaining work, such as discrimination and mental health issues. In response to such concerns, the UNHCR and others have moved to pair economic development goals with broader social supports through what is known as the Graduation Approach, a step-by-step (or “graduated”) set of interventions. Starting with providing food or cash

“Livelihoods programs sound so appealing—help refugees become self-sufficient, reduce aid costs, and help the host countries, too.”

incubator to help refugees and asylum seekers from Colombia as well as local residents. The incubator has supported twenty-six businesses so far, with just 15 percent failing, compared to the 95 percent that organizers say is typical in the region.

While these efforts provide individual jobs or start-up capital for some refugees, it isn’t clear that they make a significant difference for them, or that these programs can expand to reach the huge numbers of refugees who need income. In a 2016 report Jacobsen co-wrote for the Migration Policy Institute, she argues that the success of livelihood initiatives is too often measured by how many beneficiaries they serve rather than by their actual impact on refugees’ lives. Jacobsen called for a much more rigorous assessment of how effective the programs are, how well suited they are to the market context,

to address immediate needs, these programs then move to financial literacy training, mental health counseling if warranted, and other steps on the way to full independence.

One nonprofit that has pioneered a similar approach is RefugeePoint, founded by Sasha Chanoff, F04, N04. The organization’s pilot program on refugee self-reliance, based in Nairobi, first helps stabilize people by ensuring they have shelter, medical care, food, and counseling. Then RefugeePoint offers business training and grants of up to \$200 to start or expand a business, with ongoing monitoring and support, including connections to larger loan opportunities. RefugeePoint makes up to 220 grants to refugees in Nairobi each year—and tracks the impact on refugee lives. “In an average of two years, we have been able to responsibly disengage from providing



The nonprofit RefugePoint helps refugees start and scale up businesses in Nairobi. Above: Michael, from the Democratic Republic of the Congo, sews custom shirts and dresses. Below: Henri, another refugee from Congo, and his wife chop and package vegetables to resell.

support,” Chanoff said.

One graduate of RefugePoint’s business training program is Henri, a thirty-nine-year-old who fled fighting in the Democratic Republic of the Congo that killed his mother and has lived in Kenya since 2010. (The names of refugees in this story have been changed for their protection.) A former clothing salesman, Henri started a business in Nairobi selling packages of chopped vegetables door-to-door in his poor neighborhood. At first, he and his wife, a fellow refugee from Congo, could only afford five packages’ worth of vegetables per day. In 2013, Henri connected with RefugePoint,

which—along with food and medical care—provided him with training and cash to increase production. One month after graduation from the program, he was selling fifty packs of vegetables per day.

Six days a week, Henri visits a city market before dawn, then returns home, where he and his wife chop and package more than one hundred pounds of green beans, carrots, zucchini, eggplant, butternut squash, and cauliflower. They’ve added tea and coffee to their product line because of customer requests. “Now I can make big numbers,” he said, referring to his profit of about \$40 a week. “Even getting food was hard before, and

housing. Even taking care of our kids was very difficult, but for now life is easy because every day I can get money.”

Another refugee from Congo, fifty-eight-year-old Michael, had to leave his sewing machinery behind when he fled more than a decade ago. For years, the tailor rented a machine from a Nairobi woman so he could make shirts and dresses, but it was never enough to provide well for his family of eight. With the aid of RefugePoint, which helped him pay school fees for his children as well as improve his business, he has been able to buy three sewing machines. “Before, I was living in a single room and not able to buy food,” he said through an interpreter. Two months after graduating from the RefugePoint program, he was renting several rooms for his family and was clearing a profit of about \$25 a week, enough to cover food and rent.

With such promising results, RefugePoint founder Chanoff hopes the organization’s pilot program can scale up and influence humanitarian response more broadly, but acknowledges that will require more funding. And that’s one of the biggest challenges threatening livelihoods programming: insufficient or unpredictable funds. When money is limited, Jacobsen said, more pressing basic needs are—and should be—prioritized over long-term strategies to help refugees.

Even as the global refugee crisis stretches budgets thin, it’s important to shift humanitarian thinking—and international investment—from handing out aid to promoting self-reliance and boosting development in host countries, Jacobsen said. This might provide an opportunity for development agencies to work with humanitarian groups, particularly when refugees are likely to remain in a host country over the long term. “But the programs have to retain the commitment to protecting refugees,” she added. “And we need to evaluate them better to make them more successful.” **TN**

KEEPING UP WITH THE TUFTS COMMUNITY

Connect

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Still Life, with Vitamins

A collaborative course brings art, science, and community to the table. **BY JULIE FLAHERTY**

OVER THE YEARS, Silvia Bottinelli has asked her students to look at food in art—think of Cezanne's apples and oranges and Andy Warhol's soup cans—through cultural, political, and other lenses. But for a new class this semester called Food as Sculpture, Bottinelli, a lecturer in visual and critical studies at the School of the Museum of Fine Arts (SMFA) at Tufts, asked students to interpret the food depicted with an eye toward something more intrinsic: its nutrition.

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Does knowing what's in foods—the fiber, the vitamins, the good or bad fats—change our understanding of the art? It is uncharted territory for art historians, which is why Bottinelli turned to scientists at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA). “The fact that the SMFA merged with Tufts opened up many opportunities for collaboration,” Bottinelli said. “This structural change fostered my curiosity.”

Earlier this semester, students heard an introductory overview from HNRCA Director Sarah Booth and then met with six scientists in small groups, learning about micronutrients and RDAs, fibers and phytochemicals. Gregory Dolnikowski, manager of the HNRCA's Mass Spectrometry Unit, focused his discussion on milk and the many varieties of milk alternatives—from soy to rice to pea protein. At the next class, the students impressed him with the examples of milk art they had found, including an artist who bathed in milk, Harold Edgerton's stroboscope photo of a milk drop in midsplash, and a sculptor who formed bones from milk-colored plaster.

That last example “was a great connection between art and the science, because you need milk for strong bones,” Dolnikowski said. They talked

about calcium, vitamin D, and the many ways milk is important to the body.

Other students in the course, which was cross-listed with Environmental Studies as part of the Food Systems and Nutrition minor, looked at works like *Wheatfield: A Confrontation*, in which artist Agnes Denes grew two acres of wheat in a landfill adjacent to the financial district of Manhattan. If the artist's goal was to ask questions about hunger, economics, and priorities, Bottinelli had other questions: “Why wheat specifically? Was it processed later? In what ways were people empowered to know about the nutritional properties of the food? And what does monocropping mean to the ecosystem?”

Some artists have been clearly concerned with the nutritional makeup of their work. In 1992, the Haha collective built a garden in a Chicago storefront to grow food for people with HIV. It becomes even more meaningful when you know that kale, collard greens, mustard greens, and herbs they grew were thought to boost the immune system. “This was during the AIDS crisis, and a lot of research was yet to be done about a cure,” Bottinelli said.

In other cases, artists overlooked nutrition, which seemed to Bottinelli

like a lost opportunity. “They could have conveyed so much more, could have had much more impact,” she said.

So did knowing something about nutrition give the art more meaning? Sometimes yes, sometimes not so much—just like the scientific process. “It's good to ask open-ended questions. It's also important to remain honest when we analyze the results, to not force interpretation onto things,” Bottinelli said. In fact, Bottinelli structured the class to mirror the steps that both scientists and artists take: starting with a question, drilling down, and then deciding how to communicate their results.

To that end, the class spent the last weeks of the course talking about public art. That prepared the students to share some of what they learned about nutrition with a wider audience. With the help of Tisch College of Civic Life and the Chinese Progressive Association, one of the HNRCA's neighbors in Boston, the class invited senior citizens to a luncheon of brown rice salad, turmeric tea, and other healthy foods from their own traditions.

They created placemats that conveyed nutritional wisdom, often with an artistic twist. Soojin Kim, who graduated in May with an M.F.A., painted amaranth, a popular vegetable in Chinese cuisine, bordered with a delicate geometric pattern—the structural formula for vitamin K. HNRCA scientists joined the conversation, interpreting the placemats and answering questions about nutrition and aging.

The meal over, Bottinelli hoped to keep some of the used placemats, which drips of beet juice and smudges of Greek yogurt had turned into new artworks. It was a reminder of the day that art and science shared a table.



Left: SMFA student Katherine Wildman created a placemat that explores the dietary—and artistic—benefits of fats. Previous page: Soojin Kim's amaranth leaves with a vitamin K border.



The Long View on Nutrition and Aging

Sarah Booth, new director of Tufts' nutrition research center, knows that solid science takes commitment and collaboration

IN MAY 2017, Sarah Booth had been interim director of the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) for only months when she was hit with a bombshell. President Trump proposed a budget that would eliminate the HNRCA's federal funding, jeopardizing its existence.

Almost immediately, Booth heard from administrators at Tufts and the USDA, promising that they would fight alongside her to keep the funding intact. With their support, she spearheaded a campaign to highlight the many ways that this 40-year academic/government collaboration has benefited society with its solid science.

The vocal support, which helped secure funding for the near future, was invigorating. "It was probably the turning point at which I thought I really want to be the center director, because now I know what I'm fighting for," Booth said. "While it was traumatic, it also presented us an opportunity. And we ran with it."

Booth, director of the HNRCA's vitamin K lab and former associate director of the center, was appointed permanent director in February. She is using her platform to show that as Americans are living longer the science coming out of the center is more crucial than ever.

All of the current federal guidelines on adult nutrition draw on research from the HNRCA, Booth said, and she plans to build on that strength. "We have a really unique role in leveraging our research in nutrition and physical activity for helping individuals have a longer

quality of life and more independence. Because we've had this continuous funding for 40 years, our science can build on itself—it's not confined to a five-year grant period. That is something I believe we are very strong at and I'm going to continue to promote."

While healthy aging remains the center's focus, Booth wants to encourage work with other centers to look at nutrition throughout the life cycle. For example, HNRCA researchers who study age-related bone loss could work with scientists who investigate peak bone mass in children, she said, so that "through collaborations we will be able to look at the continuum."

Booth was born in England and grew up in Canada, where she earned a biology degree from McGill University. After graduation, she spent three years in Nigeria with CUSO, the Canadian equivalent of the Peace Corps, teaching biology and health classes to high school and college students. From there, she turned to nutrition, earning her master's at the London School of Hygiene and Tropical Medicine and her doctorate from McGill. When she joined the HNRCA's vitamin K laboratory, she thought she would be there for a year. She ended up staying 25 (and counting).

Booth also has strong ties to the Friedman School of Nutrition Science and Policy, where she has been a professor since 2006. She has served as chair of the Nutritional Sciences Department and director of the Biochemical and Molecular Nutrition Program, along with sitting on dozens of committees and teaching several courses. She has mentored or advised countless students, a passion of hers since she began teaching at the age of 20.

"I have always found that students have pushed me to places I never would have gone," she said, noting that testing scientific boundaries is a good thing. "It keeps me on top of my game. The major advances in our lab have always been from my students."

There From the Start

Combined, these three Friedman School professors have given more than a century of service to Tufts and to science. **BY JULIE FLAHERTY**

THE USDA HUMAN Nutrition Research Center on Aging (HNRCA) building was still under construction when Jeffrey Blumberg was recruited in 1981. Mohsen Meydani and Jacob Selhub waited for the paint to dry, arriving in 1983 and 1987, respectively. Although retiring from their labs this year, these HNRCA stalwarts, who were named Friedman School emeritus professors in May, continue to inspire discovery and collegiality.

JEFFREY BLUMBERG

As founding assistant director—later to become associate director—Blumberg helped develop the HNRCA's first programs and hire the first scientists. "Jeff was a superb colleague in this endeavor: practical, humorous, warm, and energetic," said former HNRCA director Robert Russell. "The center soon established a national presence, and Jeff played a very key role in this."

Blumberg recalls the excitement of creating

something wholly new. "We all felt like pioneers," he said. "It was a very giddy time."

As director of the Antioxidants Research Laboratory, Blumberg investigated the role dietary antioxidants play in preventing damage to cells from oxidative stress and inflammation. More recently, he has focused on elucidating the health benefits of bioactive compounds called polyphenols. "People now talk about red wine and dark chocolate and green tea as healthful—our work contributed to that discussion," he said.

Associate Professor Oliver Chen said that Blumberg's knowledge and opinions on antioxidants, supplements, and health promotion are "revered and frequently sought" from people around the world. On top of that, Chen said, Blumberg is a "great mentor willing to sacrifice his precious time to provide priceless guidance for research and life directions."

When Joel Mason, now director of the Vitamins and Carcinogenesis Lab, came to the HNRCA as a postdoctoral fellow, Blumberg was very supportive. "He was one of those senior investigators who was always receptive to helping young emerging investigators such as myself navigate the turbulent waters of biomedical research, and he did so with a very supportive and encouraging tone," Mason said.

That is exactly what Blumberg hopes to spend more time doing as an emeritus professor—mentoring

HNRCA
scientists Jeffrey Blumberg, Jacob Selhub and Mohsen Meydani were named emeritus professors at the commencement ceremony in May.



postdocs and junior faculty. He has learned a few things about how Tufts operates and how to make choices for work/life balance. That, he said, is “something that I would like to share.”

MOHSEN MEYDANI

Meydani has explored the health benefits of vitamin E, oats, turmeric, green tea, mushrooms, and many foods we eat every day. While it has been gratifying to show how what we eat can change our risk for disease, he said, the most exciting part has been discovering how benefits work on the molecular level, seeing how compounds modulate microprocesses that affect cells.

As the director of the Vascular Biology Laboratory, Meydani has focused on the role foods play in the formation of blood vessels and the development of cardiovascular disease. Once called “the oat expert” by *The New York Times*, Meydani discovered that oats do more than lower cholesterol. A component of oats called avenanthramide counteracts the buildup of plaque leading to atherosclerosis in two ways: by inhibiting the proliferation of smooth muscles in the linings of blood vessels, and suppressing the adhesive molecules that glue blood cells to artery walls. Meydani also gave us insight into curcumin—a bioactive compound in turmeric that he found increased fat burning in mice. A human study on curcumin is due to finish this summer.

According to his Associate Professor Dayong Wu, Meydani has a delicate touch with both science and art. “If you see the oil paintings in his house and learn that they were from his hands,” Wu said, “you won’t be surprised when I tell you that we often count on him for the most delicate, microscopic tissue dissection work.”

Wu added: “His dedication to research and teaching, combined with multiple talents, makes him a successful scientist and educator.”

JACOB SELHUB

Aron Troen chose to do his postdoc in Selhub’s Vitamin Metabolism Lab in large part because of its bulletin board. Instead of the usual, self-promoting display of publications, it was covered in photos of the whole lab group’s outings. Troen took it as “an expression of the pride and pleasure Jacob took in his lively lab and students” and the promise that “good science and hard work might be fostered by camaraderie.” He took the job, and wasn’t disappointed, finding that some of the best scientific insights were gleaned in wide-ranging conversations away from the lab, whether at a conference or in Selhub’s kitchen. “This style of mentorship yielded not only new ideas and collaborations,” Troen said, “but also long-lasting friendships between many of his students and colleagues.”

It’s not surprising, then, that Selhub calls his students the most important thing in his career. “I just had a philosophy that students come first,” he said. “I succeeded and I always felt that I need to see my pupils do the same.”

Selhub’s research runs the gamut from the relation of B-vitamins and homocysteine to dementia and stroke, cardiovascular disease, diabetes and kidney disease, osteoporosis, neural tube defects, immunology, epigenetics, nutrigenetics, and public health. Troen said that Selhub put a premium on getting the research done right, and helped him withstand the pressure to publish quickly. “When results were unexpected, contradicting our prediction and the prevailing wisdom, he reassured that ‘the data are the data’ and we’d all have to reevaluate what we thought we knew.”

Selhub said it has always been the intellectual aspect of the research that satisfied him. “Nothing else. I was not always looking to further my career; I just want to make sure I do good research, to create new concepts that can be proven,” he said.

LAURELS

There’s only one way to interpret the data on this one: Tufts cleaned up at the 2018 American Society for Nutrition (ASN) awards.

Professor **EILEEN KENNEDY** and Gershoff Professor **ALICE LICHTENSTEIN**, director of the HNRCA’s Cardiovascular Nutrition Laboratory, were named ASN Class of 2018 Fellows, the highest honor the society bestows.

Professor **JOSE ORDOVAS**, director of the HNRCA’s Nutrition and Genomics Laboratory, received the David Kritchevsky Career Achievement Award in Nutrition.

Professor **SARAH BOOTH**, HNRCA director and director of the Vitamin K Laboratory, took home the E.V. McCollum Award, recognizing her as “a major creative force” in clinical investigation.

Associate Professor **ELIZABETH JOHNSON**, a scientist in the HNRCA’s Antioxidants Research Laboratory, received the Mary Swartz Rose Senior Investigator Award for outstanding research on the safety and efficacy of bioactive compounds.

The Vernon Young International Award for Amino Acid Research went to **ELOY BEJARANO-FERNANDEZ**, a scientist in the HNRCA Nutrition and Vision Research Laboratory.

Three Friedman School alumni also took home awards. **WAYNE CAMPBELL**, NG93, a professor at Purdue University, received the Pfizer Consumer Healthcare Nutritional Sciences Award. The Peter J. Reeds Young Investigator Award went to **HASSAN DASHTI**, N12, NG15, a postdoctoral fellow at Massachusetts General Hospital, and **REBECCA SEGUIN**, N04, NG08, an associate professor at Cornell University, received the Mead Johnson Award.

“ANNUAL GIVING IS LIKE LOVE”

Gifts to the annual fund provide a critical stream of resources for areas of greatest need at the Friedman School and the Jean Mayer Human Nutrition Research Center on Aging (HNRCA). Meet the three alumnae who are leading the charge as the Friedman School and HNRCA annual-giving co-chairs for *Brighter World: The Campaign for Tufts*.



SILVINA CHOUMENKOVITCH FURLONG, NG01, Friedman School instructor and researcher

Why do you support

the Friedman School and the HNRCA?

I strongly believe that a healthy diet is one of the pillars of prevention for all kinds of diseases. By supporting the students and faculty, I can help prepare the next generation of nutrition scientists who will continue to expand our knowledge of the relationship between food and health.

What inspired you to be a campaign committee member?

Two of my siblings and I are Tufts graduates and we all received financial aid from Tufts. For me, it is a way to give back to this amazing and unique educational institution.

Why is annual giving important to Tufts?

It is extremely important. It provides the Friedman School with flexible resources to support its dedicated faculty, provide financial aid to deserving students who otherwise could not afford their education, and support programs to enrich the academic experience.



ABIGAIL USEN BERNER, N03, pediatric dietitian

Why do you support the Friedman School and the HNRCA?

I am forever grateful for the education I received from the Friedman School. I do not think a week goes by where I do not refer to Tufts or seek out collaboration from a Tufts colleague. By giving back to the school, I hope the best students can be afforded that same opportunity.

What inspired you to be a campaign committee member?

I was honored to be asked. It definitely has moved me out of my comfort level, but I knew I was up for the important challenge that could have such a huge impact on the future of Tufts.

Why is annual giving important to Tufts?

It enables the school be the best it can be by helping to recruit and provide support to the best students and professors, improving facilities, and ensuring students and staff have cutting-edge education tools available to them. Gifts can be directed to support student internships, financial aid, faculty, research initiatives, and resources not covered by tuition.



SAI KRUPA DAS, NG02, Friedman School assistant professor and HNRCA scientist

What inspired you to be a campaign

committee member?

I know that volunteers contribute to the success of any campaign. I believe in a Brighter World and I am proud to represent the HNRCA and the Friedman School by helping out.

Why is annual giving important to Tufts?

It is the heart and soul of giving—a commitment to the institution and to the culture of philanthropic participation. Annual giving is like love: an unconditional relationship with the institution that provides what it needs most.

How can alumni and friends have an impact on Tufts and nutrition worldwide through annual giving?

Participation in annual giving by alumni and friends sends a powerful message that we are aligned in the mission to make this world a brighter place—nutritionally speaking. The friends and alumni network is the powerhouse and their participation provides the energy needed to stay charged and stay on course. Every single person's effort and contribution counts!



To learn more about *Brighter World* or to make your annual gift to Tufts, go to brighterworld.tufts.edu.



Left: Chef José Andrés.
Above: Grace Omotunde,
who received a master of
science degree, with Dean
Dariush Mozaffarian and
professors Jeanne Goldberg
and Christina Economos.
Right: Some of the 101
students who received
master's degrees.



From Small Plates to Big Ideas

At commencement 2018, a renowned chef and humanitarian shared his menu for a better world.

JOSÉ ANDRÉS IS the only chef in the world with both a two-star Michelin restaurant and four Bib Gourmands. Yet he has done far more than popularize *tapas*. Five days after Hurricane Maria hit Puerto Rico in 2017, he was there. What started with 20 friends in one San Juan kitchen grew to more than 20,000 volunteers in 23 kitchens. They turned out 150,000 meals a day, totaling more than 3.3 million meals.

“We didn’t meet, we didn’t plan, we only did what we know—we started cooking,” he told the 119 graduates at the 37th commencement of the Friedman School of Nutrition Science and Policy, held at Cohen Auditorium on the Medford/Somerville campus. Andrés, who received an Honorary Doctor of Public Service at the university-wide commencement earlier in the day, spoke about his dual—often overlapping—roles as a chef and humanitarian.

“My mission and the mission of many has been to provide sustainable solutions to poverty through the eyes of a chef,” he said, describing some of the efforts to end hunger and strengthen economies by his nonprofit World Central Kitchen, which he started after witnessing the devastation of Haiti’s 2010 earthquake. He provided meals there as well, but also learned about the cycle of poverty, including the three billion people worldwide who cook over open fires or use charcoal or wood as fuel. He now advocates for clean cookstoves, which make less lung-damaging smoke and have fewer environmental impacts.

He described going to one Haitian village to personally test out a prototype backpack for carrying water. Not only was it less useful than the traditional ways the Haitians used (he got soaked to his underwear), “it didn’t begin to address the cause of the problem—no clean water nearby.” Soon, he said, the village will have an atmospheric water-collection system powered by the sun.

“To be young and inexperienced for many is a handicap,” he said. “But actually it can be your greatest asset. You’re not captive to the failed ideas of the past.”

Andrés praised the class address, given by Alejandra Cabrera-Mondragon, N18, who likened the solving of nutrition problems to the native-American practice of planting corn, beans, and squash together. The corn provides a pole for the beans to climb, the beans fix nitrogen with their roots, and the squash leaves spread out to suppress weeds. One of the best attributes of the Friedman School, she said, is that “we acknowledge that if we are going to attempt to solve the world’s most pressing issues related to food and nutrition, we are not going to do it alone. We need to reach across sectors, across cultures, across countries, and across what makes us uncomfortable. Because everyone has a role to play.”

“When you want something done right,” she said, “you do it together.”

YOUR ALUMNI ASSOCIATION

GREAT EVENTS FOR ALUMNI



WELCOME GRADUATES OF the Class of 2018.

Though many of you were only students for a few years, you are members of the Alumni Association for life. Our alumni LinkedIn and Facebook groups are a great way to remain connected.

This spring we held our 11th annual DC Networking Trip. Despite winter weather, twenty-four alumni from fifteen organizations participated over two days. The first Tufts Food and Nutrition Entrepreneurship Competition, which ties into the school's larger entrepreneurship program, was also a great success. (See page 16.)

We celebrated All-Alumni Reunion Weekend at the end of April. In addition to the Gershoff Symposium and Alumni Awards Ceremony, our Alumni Day event brought together alumni, students, and faculty for a networking brunch and presentation about building food accessibility and sustainable policies.

Save the date for a reception during the Food and Nutrition Conference and Expo in Washington, D.C., October 20-23. As always, if you have suggestions regarding alumni programming, please feel free to contact me at gracephelan@gmail.com.

GRACE PHELAN, N05

President, Friedman School Alumni Association



THE FRIEDMAN SEMINAR SERIES IS ONLINE

Held weekly throughout the academic year, these presentations feature experts from academia, government, industry, and the nonprofit sector sharing the latest ideas, research and controversies in nutrition science and policy. Read more and watch full seminar videos at nutrition.tufts.edu/seminars.



Top: Dianna Bartone N17, MG17, Jacqueline Michetti, N11, Samantha Kelly, N15, and Lara Hyde, N09, NG12. Bottom: Dylan Anderson-Berens, N17, facing camera, speaks with Corey O'Hara, xz F08, N08.

REUNION 2018

The Friedman School held its All-Alumni Reunion on April 27 and 28, beginning with the annual Stanley N. Gershoff Symposium held at the Jean Mayer USDA Human Nutrition Research Center on Aging. At the Alumni Awards Ceremony, Punam Ohri-Vachaspati, N91, NG94, a professor at Arizona State University's School of Nutrition and Health Promotion, received the Leadership and Expertise Award for conducting high-impact work in the field of nutrition. The Impact Award, for making outstanding contributions to the field of nutrition, was given to Elanor Starmer, F07, N07, program officer in economic security at the Wyss Foundation. Cristiana Falcone Sorrell, F01, N01, senior adviser to the chairman of the World Economic Forum, received the Leah Horowitz Humanitarian Award for striving to achieve lasting change by empowering communities. The celebration continued with networking, presentations on food accessibility, and other Alumni Day events at the W Boston Hotel.

Class Notes

1987

MIRIAM NELSON, N85, NG87, was named president of Hampshire College in April. A Tufts faculty member for twenty-five years, she was most recently the deputy director of the Sustainability Institute at the University of New Hampshire.

2000

ANDREW SHAO, N96, NG00, joined Amway Corporation as senior regulatory science adviser. He works with cross-functional teams and external partners using science to shape nutrition policy and regulation.

2006

JEANENE FOGLI-CAWLEY, NG06, was promoted to executive director of health economics and outcomes research at Relypsa, a biotech specializing in nonabsorbed polymer-based therapeutics.

WILLOW JAROSH, N06, and her husband, Jared Thompson, welcomed their first child, August (Augie) Ivie Thompson, on Monday, January 8, 2018. His giggles are incredible.

2007

SARAH BORRON, N07, is now the senior program officer for the Food Integrity Campaign at the Government Accountability Project.

TOMOKO KATO, N07, is back at the U.N. Food and Agriculture Organization's headquarters in Rome

working as a nutrition and food systems officer. She also married on January 22, 2018.

MARY LESSER, N07, and Lenny Lesser (Tufts Family Medicine Residency program 2009) welcomed their first child, Adam James Marc Lesser, this past year.

2010

ASHLEY COLPAART, N10, is founder/CEO of the Food Corridor (thefoodcorridor.com), a virtual food hub connecting small businesses to commercial kitchen space.

ASTA GARMON, N10, and her family welcomed a daughter, Charlotte Hazel Garmon, on December 23, 2017. Brother Benjamin is so excited to have a sister.

JESSICA LATTIF, N10, and Jalal Elhayek, N10, are overjoyed to welcome their second son, Misha, who was born at home on April 20, 2018, with support from experienced midwives. Big brother Julian is four.

SARAH TRIST, N10, welcomed her son, Juna Arthur Rumrill Trist, to the world on May 23, 2017.

2014

ALANA GUADAGNO, N14, had a baby and moved to Italy.

TRISTAN KAISER, N14, and his wife, Anastasia, welcomed their son Jonas Everett Kaiser, born March 9, 2018, in Palo Alto, California. Mom and dad are already debating the first foods he will try.

2016

SADIA SALMAN, CER16, is delighted to share that her company, Diet by Design, has gone international—from Pakistan to Canada—in six years. It provides wholesome, calorie-controlled meals and diet plans to treat health problems like diabetes and hypertension. She thanks all her professors and mentors, and all she learned at Tufts, for helping her company reach where it stands today.

2017

MATT ALLAN, N17, joined the Grocery Manufacturers Association last year to work on the SmartLabel program (smartlabel.org), an initiative that allows consumers to access more detailed product information for food, beverage, supplement, household, pet care, personal care, and over-the-counter products. In his free time, Matt has enjoyed exploring the Washington, D.C., area and scrolling through Petfinder.

In Memoriam

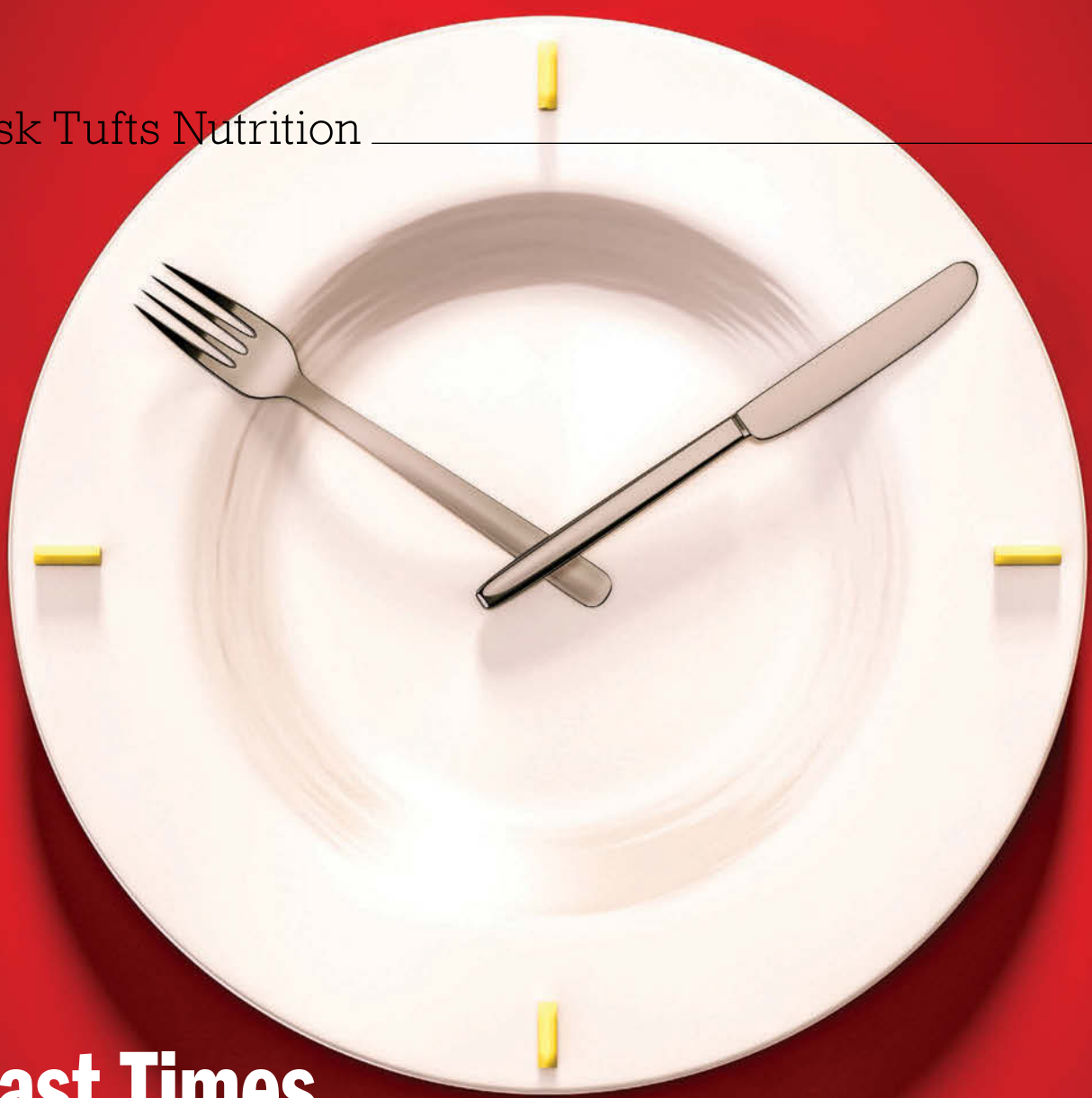
AMY BARR, AG78, NG78

Amy Barr, the executive director of LIFT-UP, the Food Bank of the Rockies, died on March 22, 2018, from cancer. She was 64 and lived in Carbondale, Colorado. Barr spent several years as director of the United Way in the Aspen area. She was a cofounder of communications firm Marr Barr. In the late 1990s, Barr was a vice president at Horizon Organic Dairy. Before that, she was director of the Good Housekeeping Institute, which tests home, health, and beauty products. She was an avid art collector, cat lover, and foodie. She is survived by her husband, Jay Cronk; her mother, a sister and three brothers.

ROBIN MITTENTHAL, N00

Robin Miententhal, 43, of Madison, Wisconsin, died unexpectedly on December 3, 2017, following an accident at his farm. He was the center coordinator for the Midwest Center of Excellence for Vector-Borne Disease, which studies such illnesses as Zika and Lyme disease. He spent six years as the Global Health Administrative Program Manager at the University of Wisconsin-Madison, where he advised students and coordinated field experiences. He also worked as a young-adult librarian, served as the leader for the Eagle Heights Community garden, volunteered to maintain the prairie and gardens at an elementary school, and was launching a berry-picking farm. He is survived by his wife, Daniella Molle, and their two children.

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Fast Times

SAI DAS, NG02, a scientist in the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts and an assistant professor at the Friedman School, serves as our expert.

Q: *Are fasting diets effective and safe for losing weight? Are they better than other diets?*

A: Although traditional reduced-calorie diets are a science-based way to lose weight, intermittent fasting is a good alternative that studies suggest is just as beneficial.

With intermittent fasting diets, people aren't necessarily avoiding all food for days on end. More often, they're just significantly reducing their calorie intake or abstaining from eating for extended hours of the day or certain days of the week. They might restrict their eating to between noon and 8 p.m., for example, or on alternate days eat only half of their typical daily calorie needs, or choose two days a week when they only eat five hundred calories. In between those

times, people eat as they normally would. I think one reason intermittent fasting is popular is that it gives people some structure to help them restrict calories, yet it doesn't carry the mental strain of having to be on a diet every day.

Although some proponents of fasting claim it is better than a typical calorie-restricted diet at preserving muscle mass and reducing bad cholesterol and blood sugar, there isn't enough data to confirm these claims.

Some people are better able to manage hunger with periods of fasting than others. So if the fasting regimen is still making your hunger worse after a couple weeks of adapting, it's not right for you. Total calories still matter, so don't take nonfasting days as an excuse to eat with abandon or double-up on desserts. And be sure to let your physician know if you start a fasting diet, particularly if you are prediabetic or diabetic, as fasting can affect blood glucose.



Send your questions for future installments of "Ask Tufts Nutrition" to Julie Flaherty, Tufts University Office of Publications, 80 George Street, Medford, MA 02155 or email julie.flaherty@tufts.edu.



IS YOUR
EYESIGHT
AGING
FASTER
THAN YOU ARE?

Gerald J. and Dorothy R.
Friedman School of Nutrition
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Age-related macular degeneration is the leading cause of vision loss after age 50. In the Laboratory for Nutrition and Vision Research at the Jean Mayer Human Nutrition Research Center on Aging at Tufts, scientists have linked simple sugars and starches to the likelihood of getting the disease. Visit hnrca.tufts.edu and learn more. Because it's our vision to help protect yours.

If you'd like to donate to the Jean Mayer Human Nutrition Research Center on Aging at Tufts University, visit hnrca.tufts.edu/donatenow

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BY JIMINY!

Proponents say bugs are nutritious and delicious, and farming them is good for the environment. That's why crickets and other insects are popping up as ingredients in lots of foods, from chips to energy bars.

