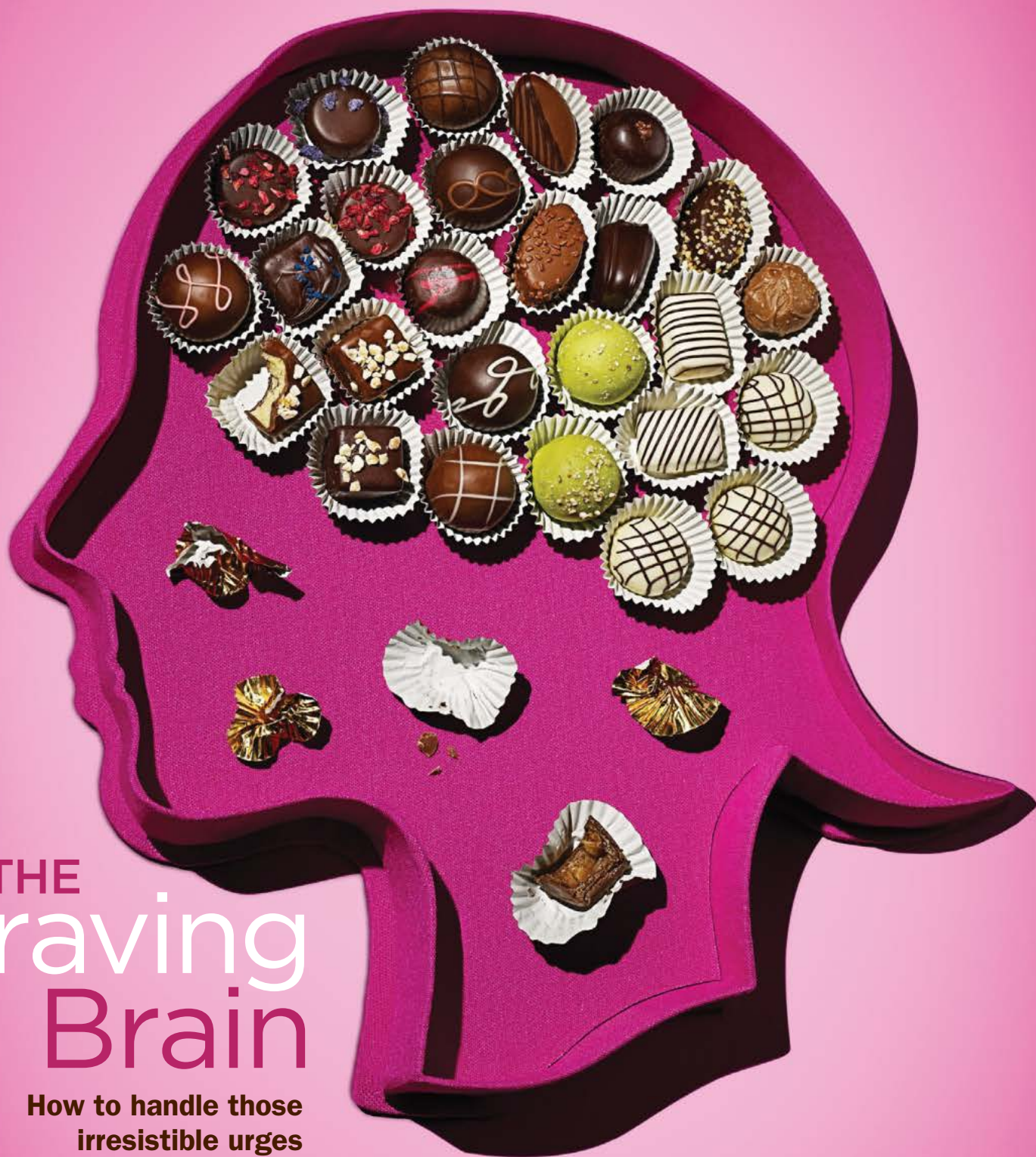


Tufts

NUTRITION

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
WINTER 2014 VOL. 15 NO. 1



THE Craving Brain

How to handle those
irresistible urges

PLUS: NATURAL OR NOT? • MOTHERS MAKE IT BETTER • ROOFTOP FARMING

Q. Can Probiotics Keep My Gastrointestinal System Healthy?

For this installment of Ask Tufts Nutrition, Joel Mason, M.D., a senior scientist at the HNRCA and professor at the Friedman and Medical schools, serves as our expert.

A Many advertisements and Internet postings say probiotics are effective for treating asthma, dermatitis and irritable bowel syndrome. At best, there is marginal evidence that probiotics help these conditions.

Where they have been convincingly shown to be beneficial is in the treatment or prevention of certain kinds of diarrhea and other, less-common illnesses.

Rotavirus is the most common cause of diarrhea in infants and children. Probiotics will significantly lower the risk of getting the “gastrointestinal flu” because of this virus and other similar organisms. And if a child does get sick, the illness will be less severe if you administer probiotics. The probiotic most consistently shown to be effective in this situation is *Lactobacillus GG*, which was developed at Tufts by Sherwood Gorbach and Barry Goldin of the medical school. You can buy it at drugstores under the name Culturelle.

A second instance where probiotics can be useful is with antibiotic-associated diarrhea. When people

go on antibiotics, they frequently develop diarrhea. A number of trials have shown two probiotics to be effective for this problem: *Lactobacillus GG* and a yeast called *Saccharomyces boulardii*. For people who often go on antibiotics—say a young woman who gets a lot of bladder infections and then gets diarrhea from the antibiotic—it would make sense to take one of these products along with the antibiotic.

In some cases of antibiotic-associated diarrhea, a very nasty bug called *Clostridium difficile* takes over, because the antibiotics have knocked out the good bacteria in your gut, and this bug fills the void. The only organism that has been shown to convincingly prevent *C. difficile* is *Saccharomyces boulardii*.

Other scenarios where probiotics have been shown to be helpful—in people with ulcerative colitis or certain problems that accompany fat malabsorption—are more specialized and applicable to a limited number of people. Many people eat yogurt because it contains probiotics, but studies looking at the potential usefulness of probiotics in a rigorous scientific manner have generally used pure preparations, not yogurt. So whether the helpful bacteria you get by eating yogurt are really as effective as pure probiotics is up in the air right now.

Read more at bit.ly/18dKbKn.

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

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Cover photo illustration by Dan Saelinger

From Students to Leaders



ONE OF THE MOST REWARDING PARTS OF MY JOB AS INTERIM DEAN of the Friedman School of Nutrition Science and Policy has been learning more about the significant impacts our 1,400 alumni are making in the global nutrition community.

Our alumni serve as faculty members at leading academic institutions in this country and abroad, and conduct cutting-edge research in nutrition science and policy. They are teaching coming generations of nutritionists who will tackle the most-pressing nutrition-related problems facing us today and in the future.

Graduates of the Friedman School have assumed leadership roles in major federal agencies dealing with nutrition and food issues, including the Department of Agriculture, the National Institutes of Health, the Food and Drug Administration and the Agency for International Development. Others work in high-level government positions outside the United States, particularly in developing countries. We have former students who are government ministers or leading advisers within ministries of health and agriculture across the globe. Alumni are also making major contributions to nongovernmental organizations in this country and abroad.

Our graduates can also be found in leadership roles in industry, from heading federal government relations for a major food producer, to directing the product science and safety division of a major nutrition firm, to developing a successful pharmaceutical start-up company, to serving as the vice president for nutrition communication at a national public relations agency.

Alumni have founded nonprofit organizations in the food sector and displayed their commitment to active citizenship by working in rural, suburban and urban communities to build capacity, leadership and community engagement around improving the food environment. Our graduates are applying the knowledge they gained at the Friedman School to respond in the most beneficial ways to famines and food security crises around the world.

And they also give back directly to the Friedman School by providing mentorship and networking opportunities to current students and serving on our Alumni Council and Board of Advisors. As but one example of the dedication of our graduates, Abby Usen Berner, N03, has ably served as president of the Alumni Association Executive Council and as an alumna representative to the Board of Advisors for the past three years; I applaud her for her work.

Friedman School alumni will continue to be leaders in their chosen fields and make important contributions to nutrition around the world. I look forward to their success.

ROBIN KANAREK, PH.D.
INTERIM DEAN, FRIEDMAN SCHOOL OF NUTRITION SCIENCE AND POLICY

Editor
Julie Flaherty

Editorial Director
Karen Bailey

Design Director
Margot Grisar

Designer
Betsy Hayes

Contributing Writers
Rachel Cheatham, Dan Eisner, Katie Fesler,
David A. Fryxell, M.E. Malone, Jacqueline
Mitchell, Justin J. Prochnow, Helene Ragovin,
Deepa Shanadi

Contributing Editor
Bob Sprague

Editorial Advisors
**Gerald J. and Dorothy R. Friedman School
of Nutrition Science and Policy**
Robin Kanarek, Ph.D., Interim Dean
Patrick Webb, Ph.D., Dean of Academic Affairs
Cindy Briggs Tobin, Senior Director of
Development and Alumni Relations

**Jean Mayer USDA Human Nutrition
Research Center on Aging at Tufts**
Simin Meydani, D.V.M., Ph.D., Director
Sarah Booth, Ph.D., Associate Director
Deb Dutcher, Communications Specialist

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We welcome your letters.
Send correspondence to:
Julie Flaherty, Tufts Nutrition,
Tufts University Office of Publications,
80 George St., Medford, MA 02155
Tel: 617.627.4273; Fax: 617.627.3549
E-mail: julie.flaherty@tufts.edu

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Partnerships Near and Far



BY 2050, IT IS ESTIMATED THAT 395 MILLION PEOPLE WILL LIVE to at least the age of 80. When I think about the many reasons that life expectancy has increased in recent history, I am reminded of why the Jean Mayer USDA Human Nutrition Research Center on Aging was created.

The HNRCA came into existence more than 35 years ago because Congress found that “improved nutrition is an integral component of preventive health care and that there is a serious need for research on the effects of diet and degenerative diseases and related disorders.” Today, we are

a world-class research center with more than 250 employees. Our work is cross-pollinated with the perspectives of the Friedman School, with the goal of exploring the relationship among nutrition, physical activity and healthy aging.

This issue of *Tufts Nutrition* highlights ongoing innovative research at the center that I hope you enjoy learning about. I would like to also share some other endeavors on which we are embarking that hold true to our founding principles.

Ten members of the HNRCA, headed by Susan Roberts and Sai Das, N02, have teamed with 16 other experts in obesity and nutrition from five countries to form the International Obesity Consortium (<http://hnrca.tufts.edu/ioc>). The consortium will conduct research to identify dietary and behavioral factors that contribute to obesity and related diseases. The findings will be used to develop country-specific interventions for sustainable weight loss and improved health. This four-year project will address the global epidemic of obesity.

On a local level, the HNRCA recently entered a partnership with the Massachusetts Horticultural Society, with which we are working to develop a series of community outreach programs. These include the Talk and Taste series and a community garden. The Talk and Taste presentations by a chef, an HNRCA scientist and a master gardener from the horticultural society are designed to educate the public about plant and nutrition science. I invite you to attend a Talk and Taste event (<http://hnrca.tufts.edu/events/talk-and-taste>). The community garden has been installed in the HNRCA lobby in Boston. Its aim is to educate the public about growing healthy food and the quantity and properties of the nutrients contained in these foods. Proceeds from the garden are donated to the Greater Boston Food Bank.

I look forward to our center continuing to contribute to important aging and nutrition research and education. All the best to you in 2014.

SIMIN NIKBIN MEYDANI, D.V.M., PH.D.

DIRECTOR, JEAN MAYER USDA HUMAN NUTRITION RESEARCH CENTER ON AGING

Laurels

ANGELO AZZI, a senior scientist in the Vascular Biology Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA), was appointed to the voluntary faculty of the University of Miami’s Leonard M. Miller School of Medicine.

Friedman School students **ALISON BROWN** and **MEGAN LEHNERD** were named 2013–14 Boston Schweitzer Fellows. They join nearly 220 of their peers across the country in conceptualizing and carrying out service projects that address the social determinants of health in underserved communities.

Professor **ROGER FIELDING**, director of the Nutrition, Exercise Physiology and Sarcopenia Laboratory at the HNRCA, is the new section editor for the *Journal of Calcified Tissues International* and the *Journal of Musculoskeletal Research*.

Professor **ANDREW GREENBERG**, director of the Obesity and Metabolism Laboratory at the HNRCA, was appointed associate director of the NIH-funded Boston Nutrition Obesity Research Center and co-director of its Adipose Biology and Nutrient Metabolism core.

Professor **WILLIAM MASTERS**, chair of the Department of Food and Nutrition Policy, received the Bruce Gardner Memorial Prize for Applied Policy Analysis from the Agricultural and Applied Economics Association.

Professor **MOHSEN MEYDANI**, director of the Vascular Biology Laboratory at the HNRCA, was elected to the editorial board of the *Journal of Nutrition and Health*.

Professor **SIMIN MEYDANI**, director of the HNRCA, has been elected to the editorial board of the journal *Aging Cell*. She has also joined the scientific advisory board for Nu-Tek Food Science and is cochair of the American Society for Nutrition’s Global Advisory Ad Hoc Committee.



Protein Power

Muscle loss that comes with age can be fixed through better nutrition

A CUP OF TEA AND A COOKIE FOR AN AFTERNOON SNACK, WHILE a pleasant routine, may not be supplying adequate nutrition for many baby boomers, a recent Tufts study suggests. Substituting a glass of milk or a hard-boiled egg would better fuel the person who has reached that time in life—that is to say, anyone older than 50—when muscle mass declines at a rate of 1 to 2 percent annually.

“It’s estimated that 20 percent of people between the age of 51 and 70 have an inadequate protein intake,” Paul Jacques, D.Sc., director of the Nutritional Epidemiology Program at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts, told the *Atlanta Journal-Constitution*. Jacques and his colleagues reported in the *British Journal of Nutrition* that physical activity (working with weights or aerobic exercise, such as swimming or cycling) plus sufficient protein intake can halt and even reverse the normal muscle loss associated with aging.

Research done by the U.S. Department of Agriculture shows that consuming 90 grams of high-quality protein a day helps strengthen muscles. For reference, there are seven grams of protein in an ounce of cooked meat, eight grams in a cup of milk and six grams in an egg. Experts say it’s best to pace your protein consumption throughout the day, so muscles have a steady supply of amino acids to draw upon.

PUTTING VITAMIN D TO THE TEST

Bess Dawson-Hughes, M.D., M75, director of the Bone Metabolism Laboratory at the HNRCA, is the co-investigator on a \$40 million research project that will look at whether taking vitamin D can help delay the onset of Type 2 diabetes in people who are at high risk.

The research team, led by Anastassios Pittas, M.D., co-director of the Diabetes Center at Tufts Medical Center and an adjunct associate professor at the Friedman School, will receive the National Institutes of Health grant over five years. The trial, titled “D2d,” will take place at 20 medical centers in 17 states. About 2,500 people at high risk for diabetes will be recruited to receive either vitamin D supplements or a placebo and will be followed for development of diabetes for approximately four years. Results of the study are expected in 2018.

Early studies by Pittas and others have suggested a strong link between vitamin D and a reduced risk of developing diabetes. Other studies have hinted that vitamin D may help conditions as varied as depression and cancer, but only its usefulness in maintaining bone health has been proven. Still, the notion that vitamin D could have far-reaching effects has made it one of the top-selling supplements in the country, with \$425 million in annual sales.

For more information or to enroll in the D2d study, visit www.D2dstudy.org.



Shape Up 2.0

ON THE HEELS OF A SUCCESSFUL Tufts project to decrease childhood obesity in urban Somerville, Mass., researchers brought a similar intervention program to rural, low-income areas across the country, where children who took part ended up eating more fruits and vegetables than their peers.

The researchers, led by Christina Economos, Ph.D., N96, the New Balance Chair in Childhood Nutrition at the Friedman School and vice chair and director of ChildObesity180, followed Tufts' Shape Up Somerville model, an approach to preventing childhood obesity that got schools, families and the community involved in changing the eating habits and physical environment for kids. At the end of that program, students in Somerville had gained less weight than students in comparable communities.

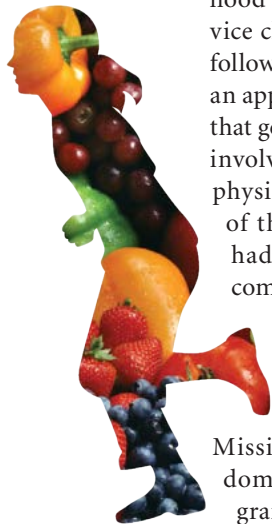
For this study, which was published in the *Journal of the Academy of Nutrition and Dietetics*, eight communities in rural California, Kentucky, Mississippi and South Carolina were randomly assigned to the intervention program or to a control group. Students in the

intervention were given healthier food options in their school cafeterias and healthy living lessons that emphasized eating at least five servings of fruits and vegetables, spending no more than two hours in front of a television or other device, and getting at least one hour of physical activity daily.

The average age of the 1,230 participating students was 8.6, and at least 85 percent qualified for free or reduced-priced meals, a signal that they came from low-income households.

At the end of the study, the children in the targeted groups consumed significantly more fruits and vegetables than those in the control groups, or 0.22 cups more for every 1,000 calories they ate. For a child eating 1,600 calories per day, that would translate to an extra one-third cup of fruits and vegetables.

"Those in rural America typically experience greater health disparities compared with those in urban areas, including increased risk of diabetes and coronary heart disease as adults," the researchers wrote. "Therefore, effective interventions that improve the diets and overall health of rural children are needed."



FAMILY MEALS HELP TEENS

Eating meals together as a family can help steer teenagers away from depression, eating disorders, drug use and other problems, according to an analysis by public health researchers at Tufts.

For the analysis, published in the *Journal of Youth and Adolescence*, the researchers looked at the results of 18 studies on adolescents and their mealtime habits, and found benefits for teenagers—particularly girls—who ate with their families at least five times a week.

Margie Skeer, Sc.D., an assistant professor of public health and community medicine at Tufts School of Medicine, said it probably doesn't matter what the meals consist of, as long as there is time for talking.

"Mealtimes can provide for a baseline level of communication, during which parents (and guardians) can learn about the everyday aspects of their children's lives—both important and ordinary," she told *Tufts Now*. Besides showing children that they are a priority, it sets up a comfort zone for

talking about more serious topics, such as drugs and alcohol. And, Skeer says, everyday encounters make it easier for parents to notice changes in behaviors, friendships or grades that may signal bigger problems.

While the research suggests that families try to eat at least five meals together every week, Skeer says even eating together fewer times appears to benefit teens. And if sitting down for dinner just isn't possible, finding 30 minutes to talk in the car could work.



CALM THE BABY, BUT FORGO THE BOTTLE

Studies have shown that fussy babies—ones who cry often and are more easily distressed—tend to gain more weight and have a higher risk for obesity in childhood. One theory, says Stephanie Anzman-Frasca, Ph.D., a research associate at the Friedman School, is that caregivers of a fussy child are more likely to try feeding him whenever he cries and doing so reinforces the idea for the child that he gets to eat when he's upset.

“It could have repercussions down the lifespan,” she says. (If you’ve ever reached for a pint of ice cream when you were unhappy, you know what she means.)

Anzman-Frasca looked into ways to curb this feeding tendency in a study led by Leann Birch and Ian Paul at Penn State University. For the study, mothers of newborns were given instruction about how to tell whether their infants were hungry or fussy for other reasons. They also learned about other ways to soothe their babies (swaddling and pacifiers, for example) and how and when to introduce healthy solid foods (such as puréed green beans and squash) to even reluctant infants. At the end of the yearlong study, infants of mothers who received the instruction had a lower weight-to-length ratio than babies in the control group.

More than a quarter of preschool-age children are overweight or obese, so researchers are looking more closely at whether early infancy interventions such as these could prevent obesity later in life. Babies, after all, learn so much in their first year of life that picking up healthy eating habits could fit right in.

Tipping the Scales

IN OCTOBER, THE MASSACHUSETTS PUBLIC HEALTH COUNCIL VOTED TO STOP automatically sending letters to parents informing them of their children’s risk for obesity. The notification system, begun in 2009, involved measuring public school students for their height and weight, calculating their BMI percentiles, and then sending confidential letters home. But a number of parents objected to the so-called “fat letters,” saying they were an intrusion into family matters and sometimes misidentified muscular, athletic children as overweight.

Ending the program is a mistake, in the view of Michael Flaherty, a pediatric resident physician at Baystate Medical Center, a Tufts affiliate in Springfield, Mass., and a clinical associate at Tufts Medical School.

“Although pediatricians attempt to identify weight problems and promote healthy lifestyles, childhood well visits are typically conducted only on an annual basis, necessitating the need for additional ways to reach parents,” he said.

Flaherty outlined his views in an opinion piece in the journal *Pediatrics*. He wrote that while some children may have a high BMI because they have a lot of lean muscle mass, they are the exception. About 17 percent of U.S. teens and children are obese, three times the number in 1980, according to the Centers for Disease Control and Prevention.

“The growing number of children and adolescents seen day in and day out in our clinics with hypertension, high cholesterol, diabetes and musculoskeletal issues secondary to weight do not lie,” he said. He pointed out that several studies “have shown that childhood BMI, especially in the highest percentiles, correlates with adult obesity and the subsequent development of coronary artery disease.”

Massachusetts will continue to collect student BMIs for study purposes, but will only share the information with parents if they request it.



Up on the Roof

John Stoddard has his head in the clouds and his mind on city-fresh produce

BY JULIE FLAHERTY PHOTOGRAPHS BY MAUREEN WHITE





TO GET TO THE FARM, WALK INTO THE POSH LOBBY OF THE BOSTON DESIGN Center and go past the glass-fronted showrooms displaying sumptuous upholstery fabrics and imported carpets. Nod to the impeccably dressed salespeople, take the elevator as high as it goes, push through a fire door and climb a steep, echoing stairwell to the roof. There you'll find a wiry and well-tanned John Stoddard, N09, in dusty jean shorts, T-shirt and baseball cap, counting bags of basil and parsley for the day's delivery.

Stoddard is the co-founder of Higher Ground Farm, the first commercial roof-top farm in Boston. From the top of the eight-story building in the city's Seaport District, he has a dizzying view of the skyline and the future of urban farming. He and his business partner, Courtney Hennessey, planted their first crops in July after three years of planning. Over the summer and fall, they raised greens, tomatoes, herbs and flowers in 1,400 black milk crates filled with 25 tons of soil; if all goes as planned, next season they will install a more permanent, fieldlike system on the same roof.

Rooftop farming has a lot going for it. "Green roofs" help absorb sunlight to keep buildings from getting hot in the summer, providing a natural form of air conditioning. If you have enough of them, cooler roofs also mean cooler cities, because they reduce the "heat-island" effect that makes cities hotter than neighboring suburbs. Vegetation can keep up to 75 percent of rainwater from running off a building and taxing the sewer system. It can also extend

the life of a commercial roof two to three times by protecting it from the elements. For city dwellers, it means fresh produce for stores and local restaurants that doesn't have to be trucked in.

With this in mind, several cities have made agricultural additions to their skylines in the last five years. Chicago has a 20,000-square-foot farm above its largest convention center, and New York City has a handful of skyline farms, including 15,000 square feet of greenhouses atop a warehouse in Brooklyn.

UPWARD INNOVATION

Former Boston Mayor Thomas Menino dubbed this waterfront area of the city the "Innovation District," in part to attract start-ups with a technological bent. Urban agriculture may not have been his intention, but he has embraced it.

"A different sort of innovation is happening," says Stoddard. "And I think it's great because I would love to see innovation with sustainability in mind."

Stoddard and Hennessey, who have known each other since they were undergraduates at the University of Vermont, came up with the rooftop farm plan while they were working at a Boston restaurant. Both are avid foodies, cooks and gardeners. Stoddard, a graduate of the Agriculture, Food and Environment Program at the Friedman School, hoped to do work related to food systems, and Hennessey, who has worked on commercial and urban farms, wanted to grow things.

"Courtney says she loved farming but didn't like having to live where there were no people," Stoddard says. With the buzz of the city streets below and the beauty of the blue skies above, "this is sort of the best of both worlds."

The farmers spent more than a year looking for a building that had everything they needed: a big enough roof area, a structure strong enough to support the added weight of soil and equipment, and a landlord who could appreciate their vision. "It takes that person who thinks this is a cool idea," Stoddard says.

When he first saw the stout skyscraper that is the Boston Design Center, Stoddard thought, "We could graze mini-goats on that thing." Only a portion of the roof was available (the other two-thirds were already dedicated to solar panels), but being able to lease more than an acre of prime downtown real estate was enough.

Because rooftop farms typically aren't covered by zoning laws, Stoddard and Hennessey had to obtain variances and permits for their venture. But they said the mayor's office and the Boston Redevelopment Authority were very supportive. "Working with the city has been pretty great, actually," he says, noting that Boston has made green roofing a priority in its efforts to address climate change.

Money has been the bigger challenge. The farmers raised \$35,000 from a Kickstarter campaign and benefit concerts, but still need another \$250,000 to fully realize their dream of building out to 55,000 square feet. Small-business owner was a new hat for Stoddard, who also works for the non-profit Health Care Without Harm, helping

hospitals and other health-care institutions find local, sustainable sources of food.

"It took a while to really think of ourselves as entrepreneurs," he says.

Right now, the farm supplies 14 restaurants and stores in the North End, South End and Fenway. Their delivery method is as sustainable as their farming: They strap coolers full of produce onto a bike trailer and pedal through the city streets.

It's fairly expedient. On an ideal day, they will have everything harvested by 11 a.m. and delivered by 1 p.m. But some days, like this one, things are a bit behind, and some bags of basil have gone missing. (Hennessey accidentally took them with her earlier in the day.) So rather than disappoint

his restaurant clients, Stoddard pulls out his knife and heads back to the basil plants.

There are some special challenges to rooftop farming. Regular soil, for example, would cave in the roof, so they needed a special, light-weight mix of growing medium. They trellis their seven varieties of tomato plants every six inches to stabilize them against whipping winds. Instead of crows, seagulls are the resident nuisance birds, but so far, the worst they've done is try to nest in an empty planter or two.

A Somerville company, Recover Green Roofs, which has created rooftop farms and green spaces for such places as a Whole Foods Market and public schools, has worked with Higher Ground Farm on its design and will install the next phase, which will include a root barrier, insulation and drainage boards. But even getting this year's soil-filled milk crates safely up eight floors was no mean feat. Stoddard's first idea was to recruit volunteers from a local fitness club to pass the crates up the stairs, bucket-brigade style, "like a flash mob of 200 people." In the end, they hired a crane. "It was 2,000 bucks, but worth every penny," he says.

Then there are the small inconveniences. If he leaves behind the bungee cords to secure the coolers to the trailer, it's a long ride up on the freight elevator. "You have to plan as you are coming and going," he says. "You don't want to waste a lot of time forgetting things."

The weekend is Stoddard's favorite time to be at the farm, because most surrounding businesses are closed, and even a big city farmer likes a break from the hustle and bustle. Plus, he says, he can usually snag a free parking space on Sundays. On weekdays, he says, doing some quick farmer's math, "It's two pounds of arugula just to park." **TN**

Julie Flaherty, the editor of this magazine, can be reached at julie.flaherty@tufts.edu.



Opposite page: The tomato plants at Higher Ground Farm are well staked against winds that pop up on the roof of the Boston Design Center. **This page:** John Stoddard, N09, and his business partner, Courtney Hennessey, harvest vegetables and flowers and deliver them to downtown restaurants via pedal power.



navigating NATURAL

MOST PEOPLE WOULD AGREE THAT NUTRITIOUS KALE in its most pristine and unprocessed form is the epitome of a natural food. Grown in the earth and shipped to the market with little to no packaging or labels needed, fresh, green, leafy kale surely is about as close to natural as you can get.

The rules on what foods can make that claim are fuzzy, at best

But suppose we buy that same kale in a crispy, dehydrated version that comes in a resealable bag. Now suppose the kale has added “cheezy” flavoring. Suddenly, it starts to sound like just another processed snack food. But what if the nondairy “cheeziness” is vegan and comes from cashews, sesame seeds and nutritional yeast—and *organic* yeast at that. Is the product natural? And what if an antioxidant is added to preserve freshness and extend shelf life—still natural now? In other words, at what point does a food leave the territory of all natural and become artificial, synthetic and ultimately not natural?

That’s a complicated question.

The term “natural,” not unlike beauty, is in the eye of the beholder. That may be why, to date, the U.S. government has bailed on defining what foods can be labeled natural, except in a few narrow categories. To fill that void, food companies have attempted to self-define natural, at the peril of sparking

lawsuits (see “Labels and Liability,” page 13). Ultimately, though, consumers are left on their own to navigate the natural food-scape—replete with its official and unofficial labels, marketing lingo and buzz words.

Choosing among items labeled “natural” or “all-natural” or “100 percent natural” is at times a trying exercise: In our attempts to eat more simply and healthfully, we face a glut of labels that don’t easily point us toward better nutrition. What’s clear is the “natural” conundrum is not going away any time soon. Sales of natural and organic foods and beverages are expected to ring in at nearly \$80 billion by 2015, according to the market researcher Packaged Facts.

BEETLE JUICE

To tackle the prickly question of what foods are natural, let’s begin with what is defined. First, the U.S. Department of Agriculture (USDA) has guidelines for labeling meat and

poultry products, saying that a product may be called “natural” if it contains no artificial or synthetic ingredients, including flavors, flavorings, colorings or chemical preservatives. This definition, though, was never intended to apply to labeling any foods other than meat and poultry products.

Meanwhile, the Food and Drug Administration (FDA) has steered clear of defining what foods are “natural,” although FDA statements suggest the agency does not object to the use of the term if the food does not contain added color, artificial flavors or synthetic substances. The agency does offer some guidance around what constitutes a natural flavoring, saying it is “a substance extracted,

BY RACHEL CHEATHAM, N05, N08

ILLUSTRATION BY DAN PAGE

distilled or otherwise derived from plant or animal matter and whose significant function in food is flavoring rather than nutritional.” But the FDA doesn’t use the term “natural” when it comes to defining color; instead, it separates colors into those that need to be inspected and certified (manufactured ones) and those that don’t (ones derived from plant, animal and mineral sources).

That leaves a lot of leeway in what can be considered a “natural” coloring,

as Starbucks customers found out when they learned that their beloved strawberry smoothies got their red hue from ground-up cochineal beetles, a government-approved food coloring found in products from yogurt to snack cakes. Beetles are as natural as the earth itself, but for Starbucks customers, at least, ground-up beetle parts are a nonstarter. Starbucks quickly changed its coloring agent to lycopene, a phytonutrient found in tomatoes.

To confuse the situation even more, consumers have to sort out “natural” versus “organic.” Unlike the term “natural,” “organic” does come with a reasonably clear set of definitions, thanks to the Organic Foods Production Act of 1990. Organic growers must avoid chemical ripening, food irradiation and genetically modified ingredients and organisms (GMOs). Pesticides are allowed as long as they are not synthetic or artificial.

In the United States, federal legislation defines three levels of organic foods. Products made entirely from certified organic ingredients and methods can be labeled “100 percent organic,” while prod-

Ironically, it appears consumers are willing to pay more for an item tagged with a loosely defined marketing term than for one backed by formal regulations.

So what do consumers expect from the natural foods? Surveys done by the market research firm Mintel found that more than 60 percent of U.S. consumers agree with this statement: *If a product is labeled all-natural, it's healthy.* And yet, many baked chips, air-popped chips and multigrain snacks all touting “natural” or even “all natural” claims on the front of their packages are not exactly health foods. Just because something—such as a stick of butter—is natural by some definition doesn’t mean it is inherently healthful.

And just because something is derived from a natural source doesn’t mean it is actually “natural,” at least not in the way the consumer is probably thinking. Consider vanilla. During the global vanilla bean shortage in the early 2000s, food manufacturers turned to synthetic vanillin, which can be derived from wood pulp, as a substitute. While there are now reportedly ample supplies of the real thing avail-

Eat a diet rich in whole fruits and vegetables, lean proteins and whole grains. It had to be said. In other words, don’t let debates over natural derail a whole-foods diet. Whether your corn chips are labeled natural or not, it is best to enjoy them occasionally and not as a dietary staple.

Embrace the fact that many foods require processing to make it from the field to our plates, and processed foods can offer important nutrients. Take soy milk, a processed beverage that provides a third or more of your daily vitamin B12, an important vitamin only found naturally in animal products. Worry less about minimal or maximal food-processing distinctions. Instead, focus on consuming more of the healthful nutrients you want from whatever mix of processed and unprocessed foods makes sense day to day when you factor in convenience, price and taste.

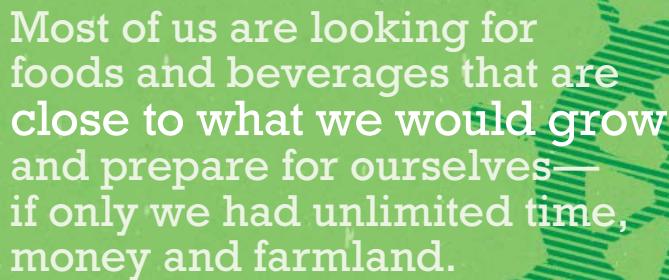
Look past the “natural” and related marketing language on the front of the package and pay more attention to the ingredients listed on the back. Choose products with fewer ingredients and with ones you generally recognize. At the same time, don’t assume an unfamiliar ingredient is bad. If the product is one you want to consume regularly, take some time to learn about any of its less familiar ingredients from credible sources.

Next, look at the nutrition facts panel on the package. Pay extra attention to those nutrients with a daily value at or well above 100 percent. That may be a sign that the nutrients, even the naturally occurring ones, were amped up or “fortified” by the manufacturer.

Purchase organic foods and beverages if you want and you can afford them, but be assured that conventional growing methods also offer equally safe and nutritious foods.

As for the “cheezy” kale, my advice is to just eat it. More nutrient-rich kale is a good thing, no matter how you bake, dehydrate, process or blend it.

Rachel Cheatham, Ph.D., N05, N08, an adjunct professor at the Friedman School, is founder and CEO of Foodscape Group LLC, a nutrition strategy and food marketing consulting firm based in Chicago. She can be reached at rachel@foodscapegroup, or follow her on Twitter at @DrCheatham.



Most of us are looking for foods and beverages that are close to what we would grow and prepare for ourselves—if only we had unlimited time, money and farmland.

ucts with at least 95 percent organic ingredients may be labeled simply “organic.” Both of these categories are allowed to display the USDA Organic seal. A third category, consisting of products with a minimum of 70 percent organic ingredients, can be labeled “made with organic ingredients,” but may not display the USDA Organic seal.

When it comes to price, 59 percent of U.S. consumers say they are willing to pay more for natural/all-natural foods, while only 49 percent are willing to pay more for organic, according to Leatherhead Food Research.

able from the vanilla crops in Madagascar and other regions, some suppliers are continuing to produce cheaper vanillin from wood pulp, an arguably “natural” substance. The problem is that the consumer who reads “naturally sourced” on a label is probably picturing a ripe vanilla pod, not wood waste.

The reality is most of us are looking for foods and beverages that are close to what we would grow and prepare for ourselves—if only we had unlimited time, money and farmland. For those of us who don’t have these luxuries, here are some guideposts:

labels and LIABILITY

Until the law is laid down, food companies cry ‘natural’ at their own risk

IN 2002, THE CENTER FOR SCIENCE IN THE PUBLIC INTEREST (CSPI), AN advocacy group that routinely challenges food companies on their labeling claims, asked the FDA to take action against that upbeat ice cream maker Ben & Jerry’s for calling some of its products “all natural.” The CSPI argued that the products, including the aptly titled flavor “Everything But The...,” contained artificial flavors, hydrogenated oils and other ingredients that are made in factories, not by nature.

But scrutinizing the naturalness of a chocolate-and-vanilla ice cream concoction of peanut butter cups, Heath bar pieces, white chocolaty chunks and fudge-covered almonds was not at the top of the FDA’s to-do list. The FDA responded that “natural” was “not among the FDA’s current enforcement priorities.”

In fact, despite repeated requests from a variety of sources, the FDA has expressly declined to define “natural” in any regulation or formal policy statement. In 2006, the Sugar Association, hoping to gain an edge on competitor high-fructose corn syrup (HFCS), petitioned the FDA to define natural, to no avail. In 2010, a handful of federal judges stayed pending litigation over the use of “natural” for beverages containing HFCS, with the expectation that the FDA would formally define natural, yet no definition was forthcoming.

When the FDA *has* addressed questions of “natural,” it has relied on a more informal policy it issued in 1993. It allows use of the term “natural” when “nothing artificial or synthetic ... has been included in, or has been added to, a food that would not normally be expected to be in the food.”

With only this informal statement to work from, the FDA has taken little regulatory

action on “natural,” other than a handful of warning letters. In 2011, it issued a quartet of letters to companies saying they had improperly used the term “natural,” because they use chemical preservatives.

In 2013, the FDA issued two more letters. One went to a company for using “natural” to describe an artificial crab meat product containing artificial flavors, preservatives and dough conditioners. The other letter took issue with an “all-natural” claim for a product containing artificial rye flavor.

The lack of a formal definition for “natural” has been a major reason lawsuits over food-labeling claims (typically, consumers bringing a class-action suit against a manufacturer) have reached an all-time high.

The range of products under attack has expanded to include such common ingredients as alkalized cocoa and ascorbic and citric acids.

More recently, “natural” litigation has focused on genetically modified organisms (GMOs) in such products as granola bars, snack crackers and tortilla chips. The debate has led to attempts to pass laws requiring labels on foods with genetically modified ingredients. Earlier this year, Connecticut was the first state to pass such a law, although

the legislation won’t kick in unless at least four other states, including one bordering Connecticut, pass similar bills.

Several high-profile ballot initiatives on GMO labeling have failed to pass, including a provision in California’s Proposition 37 in November 2012, and a recent initiative in the state of Washington. Despite those defeats, similar bills are in the works in other states, and a proposal for federal legislation on the issue was submitted earlier this year. Will the continued drive for state initiatives force the FDA to adopt a uniform definition to apply nationwide? Possibly, if more of the state efforts are successful or enough groups clamor for a national standard. Only time will tell.

So, while the FDA took steps this summer to clarify certain claims (“gluten-free,” for example, now has a standard), the meaning of “natural” is still a subject of fierce debate. Consumer advocacy groups rail that manufacturers are using the term “natural” with impunity, while market-

BY JUSTIN J. PROCHNOW, A91

ers argue that such groups overreach their needs. Until regulators or legislators define the issue, companies are left to make “natural” claims at their own peril, and consumers must perform their own evaluation about what “natural” means to them. **TN**

Justin J. Prochnow, A91, is an attorney with the international law firm Greenberg Traurig LLP. His practice concentrates on legal issues affecting the food, beverage, dietary supplement and cosmetic industries. He can be reached at prochnowjj@gtlaw.com.

We've all had those gotta-have-it moments, but they may have more to do with your mind than your stomach. Here's how to handle them

the Craving Brain

BY KATIE FESLER, N14 PHOTO ILLUSTRATION BY DAN SAELINGER

“ALL I WANT IS A *HUGE* STEAK. I MUST NEED MORE IRON.”

Chances are you, too, have uttered similar words, and quickly proceeded to a local steakhouse for dinner.

For years, popular belief has held that our cravings indicate what is lacking in our diet, that cravings are our bodies' way of telling us what they need. While not entirely false (there is research connecting cravings to certain nutritional deficiencies), it is not the whole story.

Most of us have food cravings. In fact, 97 percent of women and 68 percent of men who participated in a study published in the journal *Appetite* reported experiencing them. Cravings are motivational states that give us the urge to seek out and consume a particular food. You know the feeling—no matter what you eat, you're not satisfied until you eat that one, specific snack.

Some cravings shed light on what's missing from our diet. A desire to chew ice, for example, has been linked to iron deficiency. If you are severely lacking



in sodium—and few Americans are—you will seek out salty food. But plenty of people who eat high-sodium diets still crave potato chips and popcorn. And if our bodies could so easily tell us their nutritional needs, most Americans would have overwhelming hankerings for kale and brussels sprouts.

They don't, of course. Professor Susan Roberts, director of the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts, has researched the kinds of foods that people crave most often. In a study she conducted with 32 overweight women who were put on a diet, some of the most commonly craved foods were salty snacks, such as chips and french fries, or sweets that were high in sugar and fat, such as chocolate. The most identifiable thing about the foods people crave, she says, is that they are high in calories.

A monotonous diet—and not a nutritional gap—may be more to blame for your yen for a certain food. In a study published in the journal *Psychology & Behavior*, healthy young adult men and women followed a diet that met all of their nutritional needs but consisted only of nutrition shakes for every meal for five days. People on this one-note diet reported significantly more cravings than they did on a varied diet.

In fact, some research shows that cravings have less to do with biology and more to do with psychology. In a study published in *NeuroImage*, researchers used MRIs to investigate which areas of the brain are involved in food cravings. Participants were given a nutritional drink (to eliminate hunger during the test), and then asked to think about the taste, smell and texture of a favorite food to prompt a craving. The MRIs, completed during the induced cravings, showed that the parts of the brain involved in food cravings—the hippocampus, caudate and insula—are identical to those involved in drug addiction. The hippocampus is important for memory, which helps reinforce the reward-seeking behavior that causes us to crave. The caudate also plays a role in these reward mechanisms, and it helps us to form habits, including food-related ones. The insula contributes to the emotional connection between food and cravings.

TRIGGERS OF YEARNING

Hormones are also involved. As an enjoyable food is consumed, the pleasant feeling of the experience is determined in part by hormone receptors. Over time, these receptors may become less sensitive to the hormones produced when we enjoy a particular food. Eventually, we may need to consume

more and more of that food to have the same pleasant experience, similar to the reward circuit seen in drug and cigarette addictions.

It seems that various mechanisms, including hormones and memories, create a Pavlovian response—a sensory cue that causes us to crave. Everyone knows that food is strongly tied to our emotions and memories. This is why a simple image or smell—such as the aroma of baking bread or a photo of a Thanksgiving turkey in a magazine—can cause us to crave a food. Other things that can send you on an M&Ms run to the vending machine include stress, being in a particular place and reaching a particular time of day. Perhaps not surprisingly, research done at the Medical University of South Carolina and the University of Chicago indicate that these conditioned responses are stronger when we are hungry or dieting.

But do those diet-induced cravings stick around? Maybe not. Research from the HNRCA suggests that cravings may peak during a diet. In a study published in the October issue of *Appetite*, participants reported the frequency and intensity of their cravings during a weight-loss program. At the beginning, they reported desiring sweets, carbs and fast foods. However, as participants lost weight, their hunger levels decreased, along with their cravings.

Strange Desires

Untangling what's behind a craving for certain foods—whether it's chocolate chips or potato chips—is one thing. But what about the desire to eat things that aren't foods? The annals of medicine, literature, history, anthropology and psychology are peppered with examples of people who eat items as varied as dirt, clay, paper, plaster, laundry starch, spoons or nails.

The general term for eating nonfood items is pica. According to the National Institutes of Health, pica occurs more often in young children than in adults, appearing to some degree in 10 percent to 30 percent of children ages 1 to 6. It's also observed more often in pregnant women than in the general population.

A more specific phenomenon is geophagy, the eating of earth, soil or clay. Its practice has been recorded worldwide and is noted as far back as the writings of Hippocrates. In modern times, it has been regarded from various perspectives as “a psychiatric disease, a culturally sanctioned practice or a sequel to poverty and

famine,” write the authors of a history of earth-eating that appeared in the *Journal of the Royal Society of Medicine* in 2002. An analysis by a team of biologists in 2011 suggests that geophagy helps protect the stomach against toxins, parasites and pathogens.

“We hope readers agree that it is time to stop regarding geophagy as a bizarre, nonadaptive gustatory mistake,” wrote the lead investigator of that study, Sera Young of Cornell University.

Indeed, Tufts anthropologist Stephen Bailey, Ph.D., points out that in American culture, people consume stomach-soothing products that contain calcium carbonate or bismuth compounds—minerals and metals that would not ordinarily be considered food.

In fact, the very idea of what is considered food differs from culture to culture, says Bailey, an associate professor in the School of Arts and Sciences. In many places where earth or clay are eaten, the substances are gathered, prepared and consumed in a specific, often ritually prescribed manner.

—HELENE RAGOVIN



The good news? Understanding that memory and hunger have such large roles in eliciting cravings makes creating a toolbox to manage them that much easier. Next time you have a craving you want to beat, try one of these tricks:

PICTURE, IF YOU WILL

How many times have you lost focus on a task because of an intense food craving? Cravings are shown to interrupt cognitive functioning, partly because they use the same parts of the brain. In other words, you can't focus on writing that important email because your craving is monopolizing the machinery.

Try beating the craving at its own game. Cravings use working memory, specifically the parts of the brain involved in sights and smells. Visualizing a vivid picture, such as a detailed rainbow, uses that same working memory. A study at McGill University showed that engaging in memory activities that use the imagery sections of the brain reduced cravings. Using imagery was key: Visualizing a favorite activity worked for the participants, while saying the alphabet backward did not.

AROMATHERAPY

Smells are strongly tied to our memories and emotions. When you smell something that is associated with a happy time, the brain perks up. The smell cues a desire to experience the pleasure again, and we may consequently crave an associated food.

Fortunately, we can outsmart our brains here, too. It seems that smelling a nonfood odor may help to defeat that craving. A study from Flinders University in Australia showed that after smelling jasmine, college-aged women reported their craving for chocolate lessened. The theory is that smelling a pleasant—but not mouth-watering—odor may once again monopolize the working memory.

JUST RUN AWAY

For this trick, you can accomplish two healthful things at once: calm the craving *and* get in a workout. A British study in the journal *Appetite* showed that women who walked on a treadmill when a chocolate craving hit reported a reduction in their desire for the sweet. This supports the idea that engaging in any physical activity will help curb cravings.

THE CHOSEN FEW

Roberts suggests including only a few unhealthy items in your diet to help control cravings. “Pick the ones that you love and have [just] them, not a wide variety. And then have them occasionally, not all the time.”

In fact, surrendering every now and then may be beneficial—if you do it the right way.

“The best thing is to have a similar flavor that addresses the cravings, but in a food that is more satisfying,” says Roberts. She explains: “Our hypothesis is that cravings are maintained by the neurological reward

that you get from ingesting a lot of calories. So when you have a lower-calorie, more slowly digested food, the metabolic stimulus that maintains the craving is reduced.” The next time you just *have to have* chocolate, she suggests melting a small piece of it over some high-fiber cereal: “You use less chocolate and fill up on fiber.” **TN**

Katie Fesler is a second-year Nutrition Communications student at the Friedman School. A version of this article first appeared in the Friedman Sprout.



I Could Really Go For...

Cravings may be the price we pay for living in a land of plenty. “In this country, there are so many options in our lives and in the grocery store. How do we make the decision about what to consume?” asks Tufts psychologist Marcy Goldsmith, Ph.D., J78, G01, G04, a lecturer in psychology in the School of Arts and Sciences.

Cravings—an extreme desire for a particular food—may be one way of making choices among an overwhelming number of edible options. And, she adds, these choices are hardly arbitrary. They are influenced by myriad psychological cues that affect us on both the conscious and subconscious levels. What may start as a mild desire for a particular food may get stronger if we’re not able to have it immediately, or if we think we shouldn’t let ourselves eat it: It’s too fattening, too high in salt, too rich. So when we actually get to eat whatever’s been on our mind, we feel particularly gratified, because it’s been the focus of our attention for so long. Then we begin to associate the food with intense gratification. Next time that food comes to mind, “we put a label on it and define it as a craving,” says Goldsmith, who teaches a seminar in nutrition and behavior.

Many times, though, cravings are learned behaviors, triggered by situations: You go to the movies, you crave popcorn. Or you’re subject to an effect known as priming, when a decision or action is influenced subconsciously by something you have been exposed to. If you see beautiful pictures of food in a magazine, “it’s going to put the thought in your mind, ‘Oh, I should have that,’” says Goldsmith. “If it’s repeated enough, it’s going to create an external stimulus—the more you don’t have it, the more you’ll want it.”

Product placements on television rely heavily on the priming phenomenon, Goldsmith says. It’s no accident that the judges on “American Idol” are seen drinking large cups of Coke, or those on “The Voice” are sipping Starbucks; the food companies hope your brain will link their beverages with the good feeling you have watching the show. “If I have a positive association between Starbucks and the show I’m enjoying, next time I’m near Starbucks, I’m going to say, let me go get some—I must be thirsty,” Goldsmith says.

Cravings are also culturally driven. In the United States, no food is considered more crave-worthy than chocolate, especially among women. Even the idea that women are physiologically driven to crave chocolate when they’re premenstrual has a lot of cultural acceptance. Yet women from other cultures do not report similar hankerings, researchers have found. And a 2009 study of pre- and postmenopausal American women conducted at the University of Pennsylvania found that self-reported chocolate cravings did not appear to abate after menopause to the degree that would be expected if the cravings were hormonally driven.

—HELENE RAGOVIN



TRUST THE *Mothers*

Having a child changed my view of international development work

MY FIRST EXPERIENCE IN INTERNATIONAL DEVELOPMENT was as a Friedman School student, when I interned for three months with Save the Children in Siraha, Nepal. There I met a woman who worked as a community health facilitator for her village, leading a nutrition program for women and their children. I still remember her face, but not her name. She was 24 years old, the same age I was, and a mother of two.

I visited her in her home, where she lived with her husband, who worked in the fields, and her in-laws.

I thought she was an amazing woman. She had so many duties taking care of her children and her home (they had no plumbing, and hauling water from the well was fatiguing). But she also was educating other mothers, specifically new mothers, about breastfeeding, nutritious foods that help children grow and

BY DEEPA SHANADI, N02, MPH02 ILLUSTRATION BY ANNA AND ELENA BALBUSSO

simple hygiene, such as hand washing. I wasn't sure if this soft-spoken woman realized that she was making a difference—she may have seen this part-time work with an NGO primarily as a way to bring in a little extra income—but I saw it as a valuable job.

I think of her often. She had not gone to high school. She married at 18. Does she have more kids? Is she still working with the NGO? Does she have a bathroom in her house now?

Since that time, I have been evaluating health and education projects in such places as the Gambia, India, Cambodia and Kenya, consulting for NGOs that emphasize maternal and child health. In India, I observed government-trained auxiliary nurse midwives from a tribal community provide prenatal care to women in their homes. Just like the health facilitator in Nepal, these midwives had limited education and resources, and yet chose to do important work, probably unknown to them how important.

But it was not until I became a mother myself and was confronting my own challenges juggling work and motherhood in the United States, that I came to understand firsthand the importance of mothers to successful international development—and why we must help them.

MOTHERS OF PROGRESS

Several studies have found that money in the hands of women more often goes toward the well-being of their children. When women in developing countries own property or add to the family's income, or when they have access to development assistance, that money is more likely to be spent on food, medical care and housing. Now I understand why. After having my first child five years ago, my priorities shifted completely. My children's needs are always met first, whether it is buying diapers, food, clothes and toys, or enrolling my daughter in an art or dance class. Any money I receive as a gift immediately is spent on my children. They are my No. 1 priority.

It makes sense to me now why development organizations see women as important agents for economic progress. The World Bank has found that providing extra income to women means a greater probability that their children will go to school and enjoy good health. The World Economic Forum has shown that giving women farmers in Kenya the same level of agricultural assistance as men could increase crop yields by more than 20 percent. For reasons like this international NGOs have focused on working with women to help pull families and communities out of poverty. Also, the more positive and active a role a healthy and empowered mother has in caring for her family, the better a role model she is for her children, specifically young girls.

Motherhood also has given me a better understanding of why it is critical to emphasize maternal health during the baby's first year of life. According to the United Nations Population Fund, every day, approximately 800 women die from causes related to pregnancy and childbirth—most of them preventable—and 99 percent of all maternal deaths occur in developing countries. The consequences affect generations. In Bangladesh, a study by the International Centre for Diarrheal Disease Research found that when women, particularly the poorest women, become sick after giving birth, it places a heavy financial burden on the family.

But even for mothers who do not suffer complications in childbirth, the first year is a physically challenging time. I was aware how tiring becoming a new mother would be, but did not know how demanding breastfeeding would be. I am amazed that women are able to do labor-intensive farm work and also breastfeed. How do they manage?

Health programs emphasize that breastfeeding is best for the child, but for breastfeeding to bring the ultimate benefits, the mother needs to be fed well to produce enough nutritious breast milk. I remember how my mom, who was born in India, cooked lots of fenugreek and dill so I could produce enough milk; how she made sweet foods so my breast milk would taste sweet.

Articles in U.S. magazines always highlight taking care of oneself as a new mother, but now I wonder about these women in poorer households, taking care of several kids, meeting the needs of a husband, mother-in-law, and extended family and also working outside the home. How much milk do these women produce when they have so many responsibilities and live in households where there often isn't enough food? (Usually the mother eats last, and so there is not enough food for her.) Several times during my travels, I have witnessed women selling something on the roadside while nursing a baby.

The United Nations wants to improve maternal health as part of its Millennium Development Goals. For me now, the words "maternal health" are based on my own experiences and not on just classroom learning and field observations. It has made me reflect in new ways on the importance of community support and maternal instincts. I've no doubt that with continued support on all levels, the health facilitator in Nepal, the nurse midwives in India and other women like them will truly make an impact in the world. **TN**

Deepa Shanadi (Bhat), N02, MPH02, evaluates health and education projects at the Research and Evaluation Bureau at Kent State University in Ohio. She can be reached at deepab121@yahoo.com.





Forget PIZZA

BY DAVID A. FRYXELL

IF YOU'VE FOLLOWED THE HEADLINES, YOU KNOW THAT the Mediterranean diet has been associated with a range of health benefits. The recent PREDIMED study, conducted by university researchers, hospital clinicians, primary-care physicians, nutritionists and epidemiologists in Spain, linked it to reduced risks of heart disease and cognitive decline. Other studies have suggested preventive benefits against certain cancers, diabetes, Parkinson's disease and depression.

So it may surprise you to learn that there's no such thing as an official Mediterranean diet—not in the sense that there's a South Beach or Zone or Atkins diet. The dietary plans tested in recent studies showing the benefits of the Mediterranean diet vary widely—from 2 ounces of vegetables daily to 19 ounces, for example. But by and large, none of them is that far off from the latest Dietary Guidelines for Americans.

"What these studies are really showing is that a diet consistent with current guidelines, whether it is called a Mediterranean-style diet or heart-healthy diet, is effective,"

says Alice H. Lichtenstein, D.Sc., the Gershoff Professor of Nutrition Science and Policy at the Friedman School and director of the Cardiovascular Nutrition Laboratory at the HNRCA.

The first important scientific research to show that people in countries ringing the Mediterranean might be on to something nutritionally was the Seven Countries Study, led by Ancel Keys, Ph.D., of the Mayo Foundation after World War II. The long-running study examined the diets and health of almost 13,000 middle-aged men in the United States, Japan, Italy, Greece, the

Netherlands, Finland and Yugoslavia. Surprisingly,

well-fed American men had higher rates

of heart disease than men in countries

where the deprivations of the war had restricted their diets. Residents of the Greek island of Crete enjoyed the best cardiovascular health, a difference scientists largely ascribed to their diet, which was heavy on fruits and vegetables, grains, legumes and fish.

Keys, along with Harvard researcher Mark Hegsted, Ph.D.,

**You might
need to toss out
everything you thought
you knew about the
Mediterranean diet,
including the notion that
there is one**

was among the first to posit a connection between animal fats—saturated fat—and heart disease. These findings helped the American Heart Association begin a campaign in 1956 to convince people that diets high in beef, butter and lard increased the

countries. Says Lichtenstein, “I have not seen whole grains in Italy or Greece. If you’re eating paella, that’s certainly white rice. And what bread or pasta in the Mediterranean region is whole grain?”

The heaping helpings of cheese we associ-

more likely to lead to lifelong good health.”

Lichtenstein adds, “The other important thing to remember is that people in the southern Mediterranean tended to be physically active as a way of life.”



“A DIET CONSISTENT WITH CURRENT GUIDELINES, WHETHER IT IS CALLED A MEDITERRANEAN-STYLE DIET OR HEART-HEALTHY DIET, IS EFFECTIVE.”

—ALICE H. LICHTENSTEIN

risk of coronary heart disease. Keys and Hegsted also understood that the unsaturated fats found in liquid vegetable oils had beneficial cardiovascular effects—a message lost in the mid-1980s, when public health campaigns focused on reducing total fat intake.

THAT’S ITALIAN?

If you want to take advantage of the health benefits of eating “like a Mediterranean,” it’s best to think of such a dietary plan as a Mediterranean-flavored version of the latest Dietary Guidelines for Americans. Following a healthy diet might be easier when it’s given this Mediterranean twist, as many of the flavors Americans enjoy are included—in moderation.

But you’ll have to put out of your head many of the elements most Americans associate with Italian, Greek and other Mediterranean cuisines. Although the first thing that pops to mind when most of us think “Mediterranean food” is pasta, the grains used in familiar pasta dishes are processed. The healthy Mediterranean eating plans universally emphasize whole grains instead, much like the Dietary Guidelines for Americans. It’s questionable how accurately this reflects the actual traditional eating habits of people in Mediterranean

ate with pasta dishes and pizza are out, too. Cheese is high in saturated fat, one of the primary ingredients that this healthy diet tries to avoid. The unofficial but widely adopted Mediterranean diet promoted by the non-profit group Oldways notes that low- and nonfat cheese “may be preferable” and calls for limiting total saturated-fat intake to no more than 7 to 8 percent of calories.

If you think of sausage as essential to Italian dining and lamb as synonymous with Greek cuisine, you’ll need to practice moderation with both. It would help, in fact, if you forget everything you think you know about Mediterranean food—mostly from restaurants that have Americanized the cuisine and ramped up the meat, saturated fat and calories at the expense of vegetables, fruit and legumes. Even in the countries bordering the Mediterranean Sea, traditional healthy ways of eating are increasingly ceding to more American-style fare, driven by convenience and economics. Think instead of Mediterranean fare consumed by the less-prosperous peoples of the region circa 1960.

As the Oldways group explains, “The ‘poor’ diet of the people of the southern Mediterranean, consisting mainly of fruits and vegetables, beans and nuts, healthy grains, fish, olive oil, small amounts of dairy and red wine, proved to be much

BY THE NUMBERS

A recent meta-analysis of 41 prospective cohort studies of a total of 2.9 million participants found that adhering to a Mediterranean-style diet dropped the risk of cardiovascular disease and mortality. Quantifying this healthy diet, however, has proven challenging. That same analysis found wide ranges among what qualified as a Mediterranean diet in the studies. For legumes, for example, averages ranged from as little as 2 ounces a week to more than 18 ounces a week.

The meta-analysis, presented at a recent meeting of the European Association for Cardiovascular Prevention and Rehabilitation, attempted to calculate optimal daily intakes of most of the key components of a Mediterranean diet. Based on the 41 pooled studies, the optimal daily intakes (converted to ounces and rounded) were:

Dairy products: 5.8 oz. for men, 7 oz. for women

Fruit: 5 oz. for men, 4.4 oz. for women

Vegetables: 4.4 oz. for men, 5 oz. for women

Cereals/grains: 4.6 oz. for men, 4.4 oz. for women

Meat: 2.7 oz. for men and women

Fish: 0.7 oz. for men, 0.9 oz. for women

Legumes: 0.35 oz. for men and women

If you’re trying to put these averages into practice, you might think of them as guidelines for consumption across an entire week. To average 0.7 to 0.9 ounces of fish daily, for example, you’d need to eat about two 3-ounce servings per week (as is already recommended by the American Heart Association).

The meta-analysis did not provide specific amounts for red wine, olive oil and nuts, yet those last two foods were singled out by the Spanish PREDIMED study. All the participants followed a Mediterranean-style diet, but with a twist: The researchers gave one-third of them extra-virgin olive oil and another third a combination

of walnuts, almonds and hazelnuts. Both groups showed cardiovascular benefits compared to a control group, which has led some to speculate that the benefits seen in the study must be linked specifically to olive oil and nuts.

In an editorial in the *New England Journal of Medicine* accompanying those findings, Lawrence J. Appel, M.D., of Johns Hopkins and Linda Van Horn, Ph.D., of Northwestern University wrote, “Our sense is that the policy implications of the PREDIMED trial relate primarily to

the supplemental foods. Specifically, in the context of a Mediterranean-style diet, increased consumption of mixed nuts or substitution of regular olive oil with extra-virgin olive oil has beneficial effects on cardiovascular disease.”

But before you start guzzling olive oil, Lichtenstein issues this caution: “The emphasis on cardiovascular benefits for olive oil goes against all the data suggesting that polyunsaturated fats are better than monounsaturated fats.” Other studies, Lichtenstein notes, have shown vegetable

oils higher in polyunsaturated fats to be even more heart-healthy than the mostly monounsaturated fats in olive oil; these include sunflower, safflower, soybean and corn oil. And nuts can backfire for your blood pressure if you choose salty varieties that boost your sodium intake.

Generally, though, “eating like a Mediterranean” might be a tasty way to plan and stick to an overall healthy diet. **TN**

A VERSION OF THIS ARTICLE FIRST APPEARED IN THE *TUFTS UNIVERSITY HEALTH & NUTRITION LETTER*.

A Diet that Fits Your GENES

BY M.E. MALONE, N14, MPH14

THE AGE OF ONE-SIZE-FITS-ALL NUTRITIONAL ADVICE IS coming to a close, thanks to the surging field of nutrigenomics. Soon, individual decisions about whether to focus on Mediterranean-style dining, low-fat foods or a salt-free diet will get easier as we learn more about our genetic makeup and how it interacts with what we eat.

Consider a study published in the September issue of *Diabetes Care*. It found that in a group of people who carried a particular genetic risk for diabetes, and an associated higher risk of stroke, eating a Mediterranean diet negated their increased risk of stroke. Conducted in Spain with more than 7,000 participants ages 55 to 80, the five-year study demonstrated that people who carried two copies of the genetic mutation for diabetes and who followed a low-fat diet were almost three times as likely to have a stroke as those who carried one or no copies of the mutation. In contrast, the mutation carriers who ate additional olive oil or nuts—hallmarks of a Mediterranean diet—neutralized their risk.

Study co-author José Ordovas, Ph.D., director of the Nutrition and Genomics Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts and a professor of nutrition and genetics at the Friedman School, talked with *Tufts Nutrition* about the study, the Mediterranean diet and how close we are to putting nutrigenomics into use for the average eater.

Q: You’ve been examining the link between genes and diet for years. What is especially exciting to you about this latest study and its results?

A: We have known for quite a few years that all common diseases have a genetic component. That includes cardiovascular disease, of which stroke is a form. That genetic component accounts for only 50 percent of the risk for developing the disease; the other 50 percent is environment. So far, we have been studying relationships between genes or gene variance and cardiovascular risk factors, such as high LDL cholesterol or hypertension. What is important is to reach the end

point—or the disease itself—which in this case is stroke. Here, we studied the gene-diet interaction in which people with a higher risk of developing the disease can control that genetic risk by adopting a traditional diet. In this case, the environmental factor is the Mediterranean diet.

Q: How many people will this affect?

A: In this case, we're talking about 20 to 25 percent of the population.

Q: Your study was conducted in Spain, where a Mediterranean diet is a way of life. Presumably, adding more olive oil or nuts to a typical American diet won't have the same results.

A: Diet is an entire context. It's not that, 'I do whatever I want and I do something good or I take a pill and it's going to counteract all the bad effects.' You have to work with the whole context. The silver bullet never works. You have to have common sense. It has to be built around a diet that traditionally has been considered healthy.

Q: The USDA is working on the 2015 Dietary Guidelines for Americans. What would you like to see in those guidelines to help move this country closer to a Mediterranean-style diet?

A: The recommendations can be more relaxed in terms of the suggested amount of fat, as long as you pay attention to the amount of saturated fat and trans fat. With the mono-unsaturated and polyunsaturated fats, you can be more flexible. It doesn't need to be low fat. Study after study has not shown the effects that had been expected from a low-fat diet.

Q: Advances in nutrigenomics seem to be coming at a quicker pace. Why is that?

A: We have been doing the research for more than 20 years. We try to do the best with the technical resources that we have and the populations that we have. Now we are able to do more, and there are two important aspects to that. One is the technology is finally available to us to be able to sequence the genome, giving us access to all the different genetic variations that was impossible before. Second, because we are now working in large research consortiums, we are not limited as much by the sample size of the population. Before, we

had to study maybe four or five thousand people. Now we can study 100,000 people, 200,000 people, because scientists are pooling the resources that they have to reach conclusions that are solid.

Q: When conducting these large studies, are participants reluctant to have their genetic material collected and tested?

A: Very few. That is not a problem, at least not in the area we are studying, which is cardiovascular disease. Now for something like Alzheimer's disease, the response could be very different.



José Ordovas

Q: There are a number of genetic-testing kits now being marketed to the general public. One kit promises information on risk for up to 120 different diseases. How do you feel about these home kits? Are there dangers?

A: Some of those kit manufacturers are using the same technology that we are. They are providing the individual with the accuracy or precision that they have for each one of those tests. That does not mean that there is 100-percent accuracy for every one of them. Whether that is understood by the people who are receiving the results or not, that is my major concern. These kinds of things, if they are well done and they are well provided to the individual, I think they are OK. The problem is when the vendor simply provides the kit and the results without medical supervision. That may be a little bit dangerous for people who are not well educated about the limits of the testing.

Q: Can individuals interested in improving their diet based on their genetic profile gain anything from using these kits? For example, one widely available product called 23andme includes the TCF7L2 gene—the same gene linked to a predisposition to diabetes in your study—in its assessment of diabetes risk.

A: People cannot make any decisions about their diet based on any one gene in a kit such as this. In fact, the way 23andme provides the information is not aiming at that objective. The report gives information about the general risk for developing diabetes based on a number of different genetic markers.

However, if someone knows they are at higher risk for diabetes, independent of which gene is involved, they can certainly make changes to their diet. The Mediterranean diet is a proven, effective way to do that. We have known that for several decades now.

Q: What are you working on right now that might shed further light on the interplay between genetics and the diet?

A: We're not only interested in what we eat and how much we eat. We are also interested in when we eat. Because of chrono-biology—the fact that we have different chronotypes that influence how well our bodies function at different times of the day—there may be another important factor for fine-tuning personalized dietary recommendations and healthy lifestyle. We know all the machinery that regulates our metabolism at different times of the day. We know which genes those are. It's a matter of taking each one of those genes and dissecting the different genetic variations and seeing how that translates into more or less obesity or more or less metabolic syndrome. In time, we can educate people about how they have to distribute their meals and adapt them to their specific genetic variant based on the genes that define the biological clock. When we can add that component, we can make our dietary recommendations for individuals even more solid. **TN**

M.E. Malone, a former reporter at The Boston Globe, is a second-year student in the Food Policy and Applied Nutrition Program, as well as a master's of public health candidate at Tufts School of Medicine.

When Food Writers Get it Wrong

Why the popular press doesn't report about what most scientists think by **Jacqueline Mitchell**

MILLIONS OF PEOPLE ARE TAKING BAD ADVICE ABOUT THEIR diets, and it could be taking years off their lives, science writer David H. Freedman told faculty and students at a Friedman School seminar in September. Freedman, a longtime contributor to *The Atlantic* and author of *Wrong: Why Experts Keep Failing Us—And How to Know When Not to Trust Them*, and his colleague, Charles C. Mann, who writes for *Science*, *The Atlantic* and *Wired* magazines, talked about how science gets distorted in the popular press.

“Obesity robs Americans of a combined billion years of life. It’s one of the biggest health crises humanity has ever faced,” Freedman said. “Yet what are we getting from science journalism? We’re getting stuff that doesn’t reflect what scientists think.”

Take the current backlash against processed foods. The popular notion that avoiding these “foodlike substances” will lead to weight loss and a long life is simply not supported by any scientific research, Freedman said. Seemingly wholesome—organic, fresh, local, homemade—foods can easily be loaded with fat, sugar, salt and calories, he argued, duping even health-conscious consumers into an unhealthy, fattening lifestyle.

In a recent article Freedman wrote for *The Atlantic*, “How Junk Food Can End Obesity,” he argued that the “real-food” movement ignores socioeconomic realities. “The poor are stuck with McDonald’s,” he said. “Why not make Big Macs healthier?”

Freedman expected his article to be controversial. What he didn’t expect, he said, was the criticism leveled against him by fellow science journalist Tom Philpott, from *Mother Jones*. Philpott wrote that Freedman focused too much on the calories found in so-called healthy foods when “calories alone can’t fully explain” the obesity epidemic, a notion that elicited laughter from the audience of Tufts nutrition researchers and students.

“Articles should communicate what most scientists think,” Freedman concluded. “We have to figure out a way to communicate consensus science, not cherry-pick reports and studies that prove whatever silly point you’re trying to prove.”

Mann, author of the book *1493: Uncovering the New World Columbus Created*, has written extensively about genetically modified organisms (GMOs)

in food, and agreed with Freedman. “Every time I talk with researchers, time and time again they ask me why journalists don’t report what scientists think,” he said.

To prepare for his talk at Tufts, Mann sifted through 50 or 60 news stories, including those from *The New York Times* and other reputable sources. “Not one has a sentence saying the overwhelming scientific

“We have to figure out a way to communicate consensus science, not cherry-pick reports and studies that prove whatever silly point you’re trying to prove.”

—DAVID H. FREEDMAN

consensus is that there’s no hazard [from GMOs] to human health,” he said.

One problem is that science stories—particularly climate and GMO stories—get treated as business or political stories. “Science journalists, we’re a tiny minority,” Mann said. “Typically, journalists’ expertise is not science, and they typically don’t have much time.”

ONLINE ACTIVISTS

But Mann didn’t lay all the blame at journalists’ doorstep. For one thing, “bad science constantly appears in [journalists’] inboxes,” he said, citing a well-publicized study from Cornell University that claimed GMOs killed monarch butterflies. It’s an almost irresistible headline, but the study

actually showed a very tiny impact, Mann said, something you'd have to be comfortable with high-level statistics to determine.

And a writer on deadline, Mann said, is far more likely to find activists' information online than any official position statements from scientific organizations. "Who is on science's side?" he asked. "It took me several hours to hunt for position papers—they are not easily found. You'll find no group of scientists who make it easy for people writing these stories."

Like Freedman, Mann advocated clarifying the scientific consensus in any article claiming to frame the debate. But Mann also noted that sometimes the controversy isn't really about the science. Such topics as GMOs deserve more nuanced treatment, he said.

"If you talk to people who oppose GMOs, what they don't like is that their food is controlled by large entities that they don't believe have their interests at heart," he said. "The GMO benefit to the consumer is virtually zero, but they are being asked to shoulder a risk they don't understand. And the public is very right in this intuition. There's no reason on God's green earth to expect the system is looking out for them. And they have few ways to strike back."

Audience members questioned the pair about their scientific training (both men have bachelor's degrees in sciences) and asked for specific examples of good science reporters. Freedman sang the praises of Nancy Snyderman, an M.D. who is chief medical correspondent for NBC News. Mann mentioned NPR's food and agriculture correspondent, Dan Charles.

One student prefaced her question to Freedman by telling him she liked the controversial *Atlantic* article ("You're the one!" he said, jokingly), but wondered whether he really thought big food companies would be willing to make healthier products at the risk of losing consumers already accustomed to high-sugar, high-fat foods.

"No, they won't do it for the good of mankind," Freedman replied. "But public policy and public pressure can make a huge difference."

Jacqueline Mitchell can be reached at jacqueline.mitchell@tufts.edu.



FACE TIME The Friedman School welcomed the first members of its "blended" Master of Nutrition Science and Policy degree program to campus in September. For approximately one week each semester, students and Tufts faculty meet in Boston for a residency period that includes interactive coursework, lectures and seminars. The coursework continues online, building on the knowledge and relationships developed on campus.

EDIBLE CAMPUS

When George Ellmore, associate professor of biology, wants the fixings for a tasty salad or stir-fry, he often looks for them along untrimmed sidewalks or in the shade of a mailbox. And he invites you to do the same. Such spots, together with hillsides too steep for lawnmowers and corners hidden from weed whackers, become "half-wild places, little places of discovery," he says.

To show off Tufts' own kitchen garden hidden in plain sight, Ellmore leads popular tours around the university's Medford/Somerville campus. Students and community members sample a variety of seasonal treats.

There's Queen Anne's lace, from which carrots were bred: its white roots have an unmistakable carrot flavor. Purslane, a succulent green available in July and August, is like spinach, only fresher and less bitter, according to Ellmore. Another green, peppergrass, combines the flavors of horseradish and radishes, and daylily buds, which are most abundant in June, tastes like a cross between green beans and asparagus.



Watch Ellmore eat his way around the campus in a video at bit.ly/edible_campus.

Dentists Join the Campaign Against Childhood Obesity

VIRGINIA CHOMITZ, N85, N92, an assistant professor of public health and community medicine at Tufts School of Medicine, knows a lot about the suboptimal American diet, but even she was appalled when she attended a talk about what children under age 2 are eating. The average toddler diet is heavy on hot dogs, cookies, sugary drinks and other processed foods that are high in calories, low in nutrients and just right for promoting obesity.

Their diets, she says, “are dreadful.”

Clearly parents need some guidance. But how to intervene? In preschools? In the pediatrician’s office? Because many of the same foods that lead to obesity also tend to be rough on teeth, Chomitz reasoned that a good place to start the conversation may be the dentist’s office.

After all, children typically see their dentists for preventative care twice a year for scheduled cleanings, whereas they generally see their physicians for an annual checkup, she says. Physicians also have to cover a laundry list of health topics during a physical, whereas dentists and hygienists tend to have more time to talk with patients (and their parents) during cleanings.

With that in mind, Chomitz has teamed with colleagues from dentistry, medicine, public health and nutrition to pilot a project at the Tufts Dental Baby Clinic called Baby Steps to Health. The interdisciplinary team is devising a way—easily integrated into an appointment—for dentists to talk with parents of infants and toddlers about proper nutrition for a healthy weight and good oral health.

The Tufts Clinical and Translational Science Institute has given a \$25,000 Catalyst Award for the project, which is drawing on the expertise of Carole Palmer, G69, professor and head of the division of

nutrition and oral health promotion at the School of Dental Medicine; Cheen Loo, an associate professor of pediatric dentistry; Hubert Park, a resident in pediatric dentistry; and Mary Tavares, a senior clinical investigator at the Forsyth Institute. Also involved are Aviva Must, N87, N92, Susan Koch-Weser and Kenneth Chui from the School of Medicine’s department of public health and community medicine; and M.E. Malone, a graduate student in nutrition and public health.

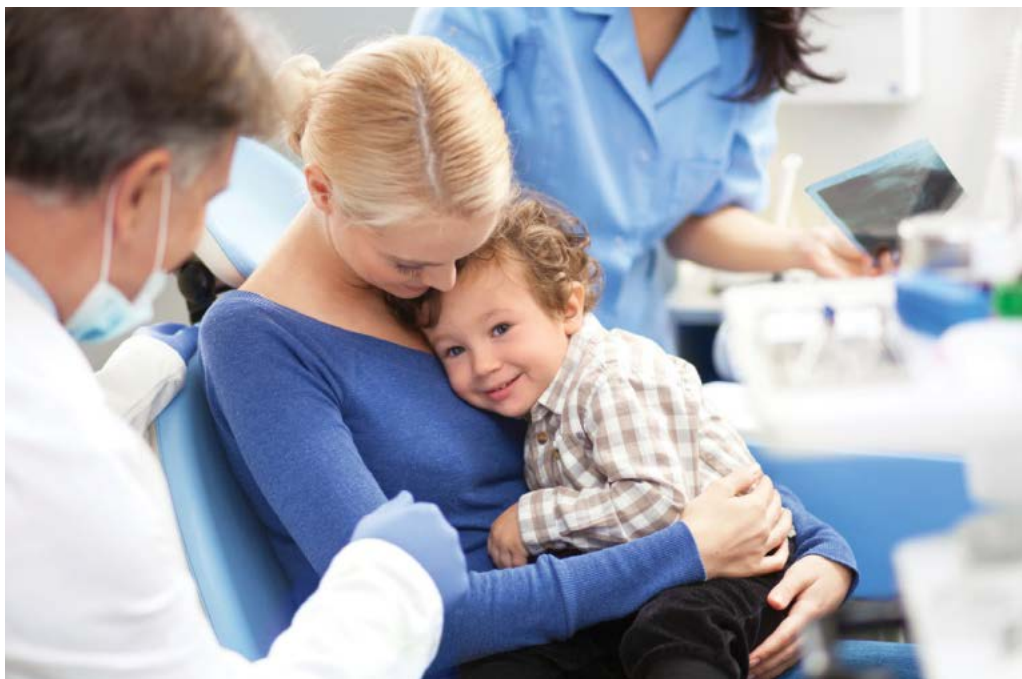
The team has been fine-tuning a questionnaire that parents will be asked to fill out in the waiting room before they meet with their child’s dentist. The dental team

really meet,” says Park, who is managing the project in the clinic.

“It’s an attempt to come up with something really practical,” says Palmer. “We have a lot of information, a lot of knowledge, but the issue is prioritizing messages that will resonate with parents of young children.”

The talking points also have to resonate with dentists, who, Palmer says, might find it easier to discuss nutrition “if they had a couple of take-home messages in their pocket that they could whip out and share with parents.”

Park, who is also pursuing a master’s in public health at Tufts, said he already has



and the parents can review it together and set some healthy eating/healthy teeth goals. The wording of the questionnaire is important, because they don’t want parents to feel overwhelmed, or wonder why they are being grilled about nutrition at the dental office.

“We are trying to home in on the intersection where dentistry and nutrition

learned a lot from sitting at the table with health experts from across the university. “That’s really the beauty of the study—multiple investigators from different backgrounds coming together,” he says. “That is exactly what I’ve been hoping for. When different experts come together, you definitely get a better quality product.”

—JULIE FLAHERTY



Getting Greener

Presidential council sets ambitious sustainability goals that will also help the bottom line by Gail Bambrick

REDUCING WASTE BY 3 PERCENT A YEAR, CURBING ENERGY CONSUMPTION BY 5 TO 7 PERCENT OVER THE NEXT THREE YEARS AND CUTTING greenhouse gas emissions by as much as 85 percent over the next three decades are among the ambitious goals that the Tufts Campus Sustainability Council has set to support President Anthony P. Monaco's initiative to maintain the university's longtime leadership position on environmental issues.

"Our topic areas are limited to campus waste, water, energy and emissions, but the university activities around sustainability span academics and research, student engagement and operations," says Linda Snyder, vice president of operations, who serves on the council and whose division will spearhead the implementation of many of the green goals. "This really defines the future of sustainability for all colleges and universities."

"Universities play a crucial role in helping the world adapt to a changing planet and to challenging issues, such as climate change and resource depletion," Monaco wrote in the prelude to the Campus Sustainability Council Report, released in May. "Tufts faculty address these issues at the highest level of insight, both in their teaching and with our students to break new ground in research," he wrote.

"We want people to think of our campuses as environmental learning labs, coordinating the research of faculty and students and making everyone an important player in achieving change," says Executive Vice President Patricia

Campbell, who cochaired the 21-member Sustainability Council with Monaco. "It really is an overall change in culture focused on environmental sustainability."

Those changes will be green in more than one way—they will help Tufts' bottom line, too. "It's one of those win-wins," says Campbell. "You do the right thing for the environment, and through cost savings, it increases the resources available to support what comes out of President Monaco's strategic-planning initiative that will position the university for the future."

In the fiscal year that ended on June 30, 2012, Tufts spent \$81 million on facility operations—about 11 percent of the university's total \$743 million annual budget, says Snyder. "If we could reduce facility operations costs, it could potentially free up millions of dollars to support teaching, research and other university priorities," she says.

Tufts' first LEED-certified green building, the Sophia Gordon residence hall, was constructed on the Medford/Somerville campus in 2006, and the dental school's five-story addition was completed on the Boston campus in 2009, earning LEED (Leadership in Energy and Environmental Design) gold certification from the U.S. Green Building Council. In August, the biology laboratories at 200 Boston Ave. on the Medford/Somerville campus received LEED gold certification.

Sixty students, faculty and staff members from all three campuses worked for more than a year to develop the environmental recommendations.

The report calls for the university to develop new ways to reduce water and energy consumption, greenhouse gas emissions and the production of waste. For example, water consumption is curbed with additional water-efficient toilets, showerheads and lab equipment, and with the use of well water for irrigation. On the Medford/Somerville campus, efforts continue to direct runoff away from storm drains with the new gardens at the Tisch Sports and Fitness Center and the garden near Hodgdon Hall.

To cut energy consumption by 5 to 7 percent each year for the next three years, the report recommends installing networked mechanical systems to centrally control and monitor heating, cooling and electricity use.

Snyder notes that there is currently no way to measure energy use in 60 to 70 percent of buildings on the Medford/Somerville campuses that are fed by its central power plant.

Other recommendations include auditing the electrical, heating and cooling systems on all three campuses and establishing sustainability protocols for new building projects and equipment upgrades.

Lower energy consumption will support the report's goals of reducing greenhouse gas emissions to 10 to 25 percent below 1990 levels by 2020, and 75 to 85 percent below 2001 levels by 2050.

MORE AND MORE RECYCLING

Changing the community's behavior is just as important as the installation of green mechanical systems, Campbell says, noting that the Tufts Office of Sustainability will develop a social marketing campaign to further that goal.

There are already some good examples of savings that can come from not just reducing waste, but managing it properly. Tufts' overall recycling rate has steadily increased since 2005, primarily the result of aggressive recycling on the Medford/Somerville campus, where 53 percent of waste is recycled, says Snyder.

While rates are lower on the Boston and Grafton campuses, 27 and 13 percent respectively, recycling on these campuses largely occurs in clinics and laboratories, which presents unique challenges, according to the report. Starting later this year, Tufts Recycles! will begin to create waste profiles of each school that will help each campus meet the ambitious waste-reduction goals outlined in the Sustainability Council report.

Tufts' waste-management contracts compensate the vendor for increases in recycling and composting, and require data-driven waste management, meaning that trash is sorted and weighed so Tufts knows exactly what it's throwing away, says Snyder.

The new university contract for waste management, with Boston-based Save That Stuff Inc., will result in \$100,000 in savings over last year's \$500,000 contract. "This is a really fortunate area where our financial goals align with our values," says Snyder. "This is why I think the waste-management goals are doable, because we already have a

company poised to help us with that."

Save That Stuff helped Boston University grow its recycling rate from 3 to 34 percent over three years and assisted Boston College in reducing its solid waste output by 50 percent over eight years.

To achieve further waste reductions, the report recommends adopting a "cradle-to-cradle" approach to purchasing decisions, taking into account the life-cycle of products and their components, with the goal of buying products and materials that have a small environmental footprint and a high reuse value.

The university will consider renewable

energy when it makes sense from a usage and payback perspective, Campbell says. A good example is the Grafton Solar Project, in which Sun Edison will install two solar-collection systems on the Cummings School campus once the proper permits have been obtained. Tufts will purchase the power generated by Sun Edison, which will provide about half the veterinary school's energy needs, saving more than \$200,000 annually.

Read the full Sustainability Council report at sustainability.tufts.edu.

Gail Bambrick is a senior writer in Tufts' Office of Publications.

FORMER U.S. AMBASSADOR NAMED DEAN OF TISCH COLLEGE



ALAN D. SOLOMONT, A70, A08P, THE FORMER U.S. ambassador to Spain and Andorra and a longtime social and political activist, became the Pierre and Pamela Omidyar Dean of the Jonathan M. Tisch College of Citizenship and Public Service at Tufts on January 2.

In announcing the appointment, Provost and Senior Vice President David Harris noted that Solomont's "commitment to active engagement in the world around him, his belief in the power of higher education and his strengths as a diplomat, entrepreneur and social activist

will enable him ... to advance Tisch College from its highly successful formative years to a future as the unquestioned international academic leader in promoting active citizenship and civic engagement."

Tisch College embraces public service and active citizenship as university-wide values. It works directly with students and faculty across all of Tufts' undergraduate, graduate and professional schools.

Like President Obama, who nominated him for the ambassadorship in the summer of 2009, Solomont as a young man worked as a community organizer, in the city of Lowell, Mass. Throughout his career, much of it spent in the health- and elder-care arenas, Solomont has embraced the ability of political activism and public service to benefit society. From 2000 to 2010, he served on the bipartisan board of directors of the Corporation for National and Community Service, the federal agency that oversees such domestic service programs as AmeriCorps, Learn and Serve America, VISTA and Senior Corps.

"For me, returning to Tufts as the dean of Tisch College is coming home to an institution I love and that has meant so much to me and my family," said Solomont, a trustee emeritus of Tufts and founding chair of the Tisch College board of advisors. "I am excited to lead one of Tufts' signature initiatives and to apply my passion for active citizenship and civic engagement to build on Tisch's solid foundation and to propel it to new heights."

Crowdsourcing the Future

Microphilanthropy initiative benefits students and their research by **Dan Eisner**

GROWING UP IN JAMAICA, PAULA NESBETH SAW MEMBERS OF HER family and her community struggle with obesity and hypertension. As a teenager, she realized that their diet was a possible culprit.

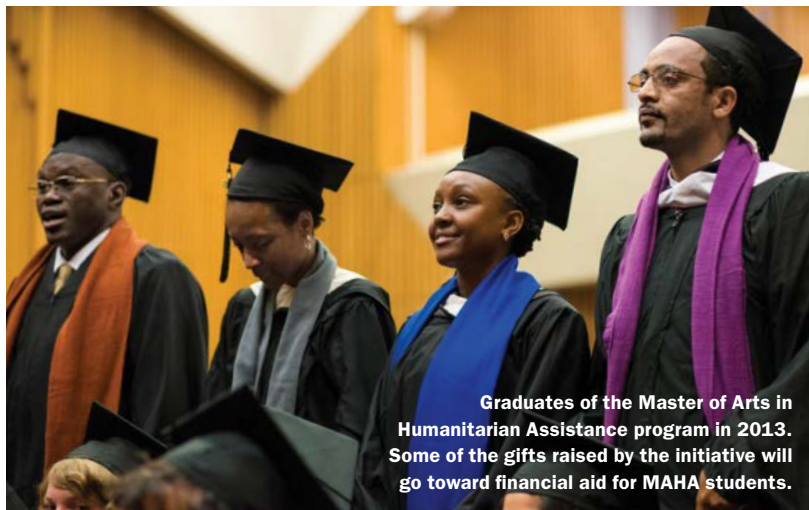
She immigrated to the United States in 2007, when she was 16, and decided to pursue a career in food science and nutrition, with the goal of preventing and treating nutrition-related health conditions. She earned a degree in biological chemistry from Grinnell College in Iowa, and then applied to the Friedman School's biomedical and molecular nutrition program.

"I chose the Friedman School because it was strong on the science and also on the social context that influences people's health," she says. "Thankfully, the Friedman School also chose me."

Without financial assistance, Nesbeth would not have been able to attend. But thanks to an innovative microphilanthropy fund-raising venture, she received financial aid that covers a third of her tuition.

The Friedman School microphilanthropy initiative, a two-month crowd-funding campaign last summer, raised more than \$28,000 in gifts to provide assistance to such students as Nesbeth who come from backgrounds

"There is a world full of smart people with the capacity to greatly benefit humanity, many of whom cannot afford the necessary education." —JAMES RABB



Graduates of the Master of Arts in Humanitarian Assistance program in 2013. Some of the gifts raised by the initiative will go toward financial aid for MAHA students.

that are underrepresented at the school. The initiative also attracted donations to other areas of need at the school, including financial aid for students in the Master of Arts in Humanitarian Assistance program and Frances Stern Master of Science/Dietetic Internship program; resources for an internship at Tufts for undergraduates from Dillard University; and gifts to support innovative doctoral student research at the Jean Mayer Human Nutrition Research Center on Aging at Tufts. In total, the crowd-funding raised \$90,000 from 147 donors.

ANGEL INVESTORS

Each microphilanthropy project had a champion, or angel investor, who contributed a lead gift and reached out to encourage others to give. James Rabb, M.D., a gastroenterologist at Beth Israel Deaconess Medical Center and member of the Friedman School's Board of Advisors, was the champion for the fund that helped Nesbeth and donated a substantial lead gift.

A dedicated donor to the Friedman School, Rabb wanted to increase his giving and found the diversity project to be especially meaningful. "I wanted to make sure that candidates with ability from any background will not turn away from Tufts just because of the financial burden," he says. "There is a world full of smart people with the capacity to greatly benefit humanity, many of whom cannot afford the necessary education. Our school thrives on its ability to attract the most gifted and committed students."

Because of the initial success of the microphilanthropy initiative, the Friedman School plans to launch another microphilanthropy campaign this winter. The program will continue to find ways to increase financial aid and enhance the Friedman School student experience.



In 2008, Maxwell, second from right, worked with local officials in a camp for internally displaced persons in Afgooyes, Somalia.

Examining Famine

Grants support research on humanitarian aid in the Horn of Africa by Dan Eisner

IN 2011 AND 2012, FAMINE ravaged Somalia and killed 260,000 people, half of whom were under the age of 6. It was the fifth food crisis to strike the Horn of Africa in the past three decades.

“Every time in the aftermath, there’s a lot of talk about how we have to do something so that this never happens again,” says Daniel Maxwell, an expert in food security who directs the master’s program in humanitarian assistance at the Friedman School’s Feinstein International Center. “There’s some action, but that tails off after a few years, and five or six years later, you have another one of these big crises.”

Maxwell is trying to put an end to this pattern and reduce the impact of future




famines. With the help of a \$291,678 grant from the Bill & Melinda Gates Foundation and a \$366,000 grant from the U.S. Agency for International Development, he is researching the response to the 2011–12 famine and its effect on the region.

The brunt of the crisis occurred in areas controlled by Al Shabab, a Somali militant group affiliated with Al-Qaeda. The organization wouldn’t allow the international community to provide aid to those places, and Maxwell hopes to learn about the extent of the suffering there and how the people coped. He’s also researching the impact of nontraditional humanitarian actors, including Middle Eastern NGOs and Red Crescent societies, on the response. They played a significant role in

the most recent famine, unlike in previous crises, when emergency responses were led almost entirely by the United Nations and NGOs based in Europe and other Western nations.

Maxwell hopes his research will strengthen efforts to make countries in the Horn of Africa less vulnerable to the next crisis and reduce the suffering in the region. “The question is, how can we make use of what we’ve learned from this crisis to prevent or better prepare for subsequent crises?” he says.

THIS RESEARCH IS JUST ONE EXAMPLE OF HOW THE FEINSTEIN INTERNATIONAL CENTER HELPS COMMUNITIES SUFFERING FROM FAMINE, WAR, HUMAN-RIGHTS ABUSES AND OTHER CRISES. TO LEARN HOW YOU CAN SUPPORT THE CENTER’S VITAL WORK AROUND THE GLOBE, CONTACT CINDY BRIGGS TOBIN, SENIOR DIRECTOR OF DEVELOPMENT AND ALUMNI RELATIONS, AT 617.636.0962 OR CINDY.BRIGGS@TUFTS.EDU.

A woman with long blonde hair, wearing a purple sleeveless dress and colorful running shoes, is walking on a paved path outdoors. She is smiling and looking towards the camera. The background shows a stone wall and greenery.

***“Exercise is
the flywheel of
energy, weight
management,
health and
many other great
things in life,”***

says Dr. Jennifer Sacheck, N01,
associate professor at the Friedman
School and a scientist at the Jean
Mayer Human Nutrition Research
Center on Aging at Tufts.

Sacheck investigates how exercise
and proper nutrition promote health
and well-being. Discoveries that she
and her colleagues make every day
are helping improve lives.

***Your gifts make our work
possible.*** Thank you for supporting
the Friedman School and nutrition
research on aging at Tufts University.

Tufts
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Gerald J. and Dorothy R.
Friedman School of
Nutrition Science and Policy

Nourishing Minds. Nourishing Humanity.

To make your contribution to the Friedman School annual fund, visit nutrition.tufts.edu/givenow2

Taking Pride



THE FRIEDMAN SCHOOL COMMUNITY is everywhere. This year's incoming class includes 104 students from 16 countries and 74 undergraduate institutions. Our alumni are entrepreneurs, dietitians, academics, scientists and leaders in government, industry and non-profits across the globe.

As the Friedman School community grows, so does the Friedman Alumni Association. Our executive council now has 30 members representing all the school's programs and a range of professions. The group is made up of alumni from Boston to California, from the classes of 1969 to 2013. We meet each year with leaders from the Friedman School, including the dean and the director of the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts, to get updates and to give feedback from the alumni perspective. We also host events around the country for Friedman School alumni and friends. We are especially proud of our exceptional alumni chapter in Washington, D.C.

Our annual awards program gives us the opportunity to honor outstanding alumni. The caliber of nominees is inspiring, and it is so gratifying to hear how the

Friedman School helped the winners excel in their fields.

Finally, we are proud of how far we have come in connecting alumni. Nutrition can be a difficult field to navigate. We hold career panels three times a year and host an annual career networking trip to Washington, D.C. We have the highest percentage of registrations of any Tufts graduate school on the Career Advisory Network. And for those who use social media, we have a strong presence on Facebook and LinkedIn, where you can find career postings and event information.

This is my last message as president of the alumni association; I will be stepping down at the end of my term, in April. Andrew Shao, N00, will be assuming the role of president. I know he will work tirelessly on behalf of the Friedman School and its alumni. Serving as president has been incredibly rewarding, and I am grateful for the opportunity to have worked with so many of you and on behalf of the school. I urge you all to network and give back in whatever way you can. It's important to stay connected and help each other keep the Friedman School community a leader in nutrition.

Sincerely,

ABBY USEN BERNER, N03

PRESIDENT, FRIEDMAN SCHOOL ALUMNI ASSOCIATION

Keep in Touch with Us

THE FRIEDMAN SCHOOL

Stop by our Web pages for information on upcoming events, ways to get involved and profiles of Friedman School alumni.

Like us on Facebook, and if you are an alum, faculty member or student, join the Friedman School Alumni Association Group Pages on www.facebook.com and www.linkedin.com.

Send a class note to:
nutrition-alumni@tufts.edu

THE HNRCA

Stop by our Web pages for news, upcoming events and information on how to volunteer for research studies.

Like us on Facebook at www.facebook.com/JMHRCA and follow us on Twitter at twitter.com/JMHRCA.

Current and former HNRCA employees can join our groups on www.linkedin.com.

Alumni ALUMNI.NUTRITION.TUFTS.EDU **Friends** NUTRITION.TUFTS.EDU/FRIENDS **HNRCA** HNRCA.TUFTS.EDU



Tufts

A Vision for Tufts

During a time of expanding horizons for the university, Tufts Alumni is pleased to invite you to meet with Tufts President Anthony P. Monaco to hear about where the institution aspires to be in the next 10 years.

During the first two years of the president's tenure, Tufts Alumni hosted 23 receptions to introduce him to alumni, parents and friends around the world. In 2013–14, President Monaco will be visiting a number of Asian cities as well as cities in Colorado, Delaware, New Hampshire, Oregon, Texas and Washington.

All members of the Tufts community are invited to attend any of these special events. As the president's itinerary is developed, you can find event dates and locations at tuftsalumni.org/president.



Clockwise from top left: Grace Phelan, N05, and Kerri Hawkins, N06; Caitlin Wong, N13, Franciel Dawes, N13, Lingxia Sun, N13, and Farah Behbehani, A10, N13, MPH12; Lesley Sykes, N11, Andrea Guillot, N11, Vinh Tran, A09, N11, and Jennifer Felsted, N11; Sai Krupa Das, N02, and Lorien Urban, N09, N11; and Associate Professor Parke Wilde.



GLAD HATTERS

Partygoers at the Friedman School's All-Alumni Reunion reception on June 7 had a great time donning props and finery and posing for the photo booth camera. This was the school's 11th reunion reception, and it was held at the Tufts University School of Dental Medicine in Boston.

SAVE THE DATE

ALL-ALUMNI REUNION WEEKEND 2014
APRIL 4-6, 2014

Join alumni and friends of the Friedman School for a weekend of exciting events, including the annual Gershoff Symposium, the Alumni Awards Ceremony and much more.

» Stay tuned for more details.

G69 **Carole Palmer** is the 2013 recipient of the Excellence in Nutrition Education of Health Professionals Award given by the Nutrition Educators of Health Professionals (NEHP). She received the award at the 2013 NEHP reception during the Food and Nutrition Conference & Expo in Houston.

N83 **Beth Winthrop** has a new job at Sodexo Campus Services as national development director for wellness. After a long career as a clinical nutrition manager and internship director for Sodexo Health Care, Beth says she is happy to be working in campus services. Her goal is to help college students establish lifelong healthy habits.

N85 **Anna R. Giuliano, N90**, is the recipient of the 2013 Distinguished Achievement in Cancer Award from the American Cancer Society, which is celebrating its 100th anniversary.

N86 **LuAnne Howard** just hit the 25-year mark in private practice and became board certified in sports dietetics. Her daughter recently graduated from the University of South Florida and is seeking a research assistant position before heading off to graduate school in a couple of years. Her son is a student at Florida Gulf Coast University, working on his core science courses; he plans to transfer to a state university that has a dietetics program. Her husband got out of farming several years ago and now works in fertilizer sales and brews beer in his spare time.

N99 **Andy Andres** is a senior professor at Boston University, a visiting lecturer at Tufts University, head coach for the MIT Science of Baseball program and a scorekeeper for MLB.com. In his role with Major League Baseball, Andy was in the Red Sox press box during Game 6 of the 2013 World Series, recording every hit, foul ball, error and call. This was the first season he played a part in the playoff games. To read more visit: <http://bo.st/17UxBgi>.

N02 **Dara Borto** is the 2013 recipient of the Tufts Medical Center True Blue Award, which recognizes employees for their hard work, dedication to the organization and a deep-rooted commitment to improving the lives of their patients and families.

N04 **Sasha Chanoff, F04**, is the recipient of the 2013 Gleitsman International Activist Award, which recognizes leaders who have "improved the quality of life abroad and inspired others to do the same." Sasha organized RefugePoint, which protects and finds lasting solutions for refugees in extreme danger.

Yan Wang, N09, and his wife, Lin Li, welcomed a son, Frank Wang, on April 25, 2013. The family lives in Arlington, Mass.

N07 **Jonathan Mein, N11**, and his wife, Debra, welcomed their son, Thaddeus William Mein, on August 11, 2013. He reports that everyone is healthy, happy and learning every day.

Charlotte Vallaeys has a new job as a senior analyst with the Food Safety and Sustainability Center at the Consumers Union.

N08 **Emily Mari Vikre** and her husband, Joel, welcomed their son, Espen Noah Vikre, on September 12, 2013. She says the family is happy and healthy and could use a really long nap.

N09 **Amber Hansen**, see N12.

John Stoddard, see N13.

N10 **Ashley Colpaart, Kathleen Stewart Enterline, Mari Pierce-Quinonez, N12, G12, Julie McCartee, MPH11, and Martelle Esposito, MPH11**, all caught up in Washington, D.C. in August, when they attended a meeting of the Agricultural & Applied Economics Association.

Kathleen Stewart Enterline recently started a personal chef business in the D.C. area called The Grateful Table, which prepares meals in the homes of people who are busy, time-crunched or need a break from the kitchen.

Asta Garmon is the program manager in the nutrition services department of the Portland (Oregon) Public Schools and reports that she is quite excited to be working for her home school district.

Amy Scheuerman married Sam Browning in an outdoor ceremony in Belmont, Mass., on September 21, 2013.

N11 **Rachele Pojednic**, see N13.

N12 **Anna Rossinoff** completed a dietetic internship at the National Institutes of Health and then moved to Portland, Ore., where she is a research associate and dietitian at Oregon Health Sciences University's Division

of Health Promotion and Sports Medicine. She will help develop and implement the institution's workplace wellness program as well as work on other disease prevention programs, including one for gestational diabetes. While in Portland, Anna has connected with other Friedman alumni, including **Amber Hansen, N09**.

N13 **Laura Carroll, MPH13**, helped plan and served as a panelist on an alumni career panel titled "Farming, Fellowships, and Freelancing" on October 30, 2013. The other panelists were **Rachele Pojednic, N11**, and **John Stoddard, N09**, and it was moderated by **Carole Palmer, G69**. You can listen to the panel discussion at <https://soundcloud.com/tuftsfriedmanschool/farming-fellowships-and>.

Micah Risk was recently on the cover of *Runner's World* magazine to promote the November Project (november-project.com). She has joined a nutrition and wellness company called Lighter, which focuses on building a community that empowers women to resist a culture of overconsumption and challenge the standard American diet. To learn more visit www.lighterculture.com.

TUFTS DEGREE ABBREVIATIONS

A:	Liberal Arts Undergraduate
D:	Dental School
F:	Fletcher School
G:	Graduate School
H:	Honorary Degree
L:	Sackler School of Graduate Biomedical Sciences
M:	Medical School
MPH:	Master's of Public Health
N:	Friedman School
P:	Parent of a Student

Bentos for Babies

Once, in the midst of early morning “get-out-of-the-house” madness, I accidentally put a bag of cold leftover rice in my kid’s lunchbox instead of the turkey rollup I had lovingly prepped the night before. Later at day care, sobbing ensued.

That sort of scenario is all too familiar to working parents with young children. And it was the impetus behind Sproot, a business that delivers healthy, individual lunches to preschoolers in the Boston area—sort of a Meals on Wheels meets Whole Foods for the Sesame Street set. E. Whitney Evans, N13, who holds a Ph.D. in nutritional epidemiology from the Friedman School, is director of nutrition for the enterprise.

“I help them keep the menus in line with the specific nutritional needs of 2- to 5-year-old kiddos,” says Evans, the mother of a 2-year-old girl. Equally important is helping devise menus that will shape the palate of these pint-sized eaters, giving them an appreciation of a wide variety of fruits, vegetables, whole grains and other nutrient-dense foods, in

appropriate portions. “Little kids have the ability to limit their intake, more so now than going forward in life.”

The Sproot menu would intrigue even the most die-hard foodie: kale-turkey meatballs with sweet potato, banana-cauliflower muffins, soba-sesame noodles with carrot, all packed in adorable animal-shaped Bento boxes. With the energy needs of young children, “every calorie counts,” Evans says. “We recognize that everything that goes into that little box should have a purpose.”

Evans, a registered dietitian, earned a master’s degree in clinical nutrition from Boston University and worked at Boston Children’s Hospital before pursuing her doctorate at Tufts. She’s now in a postdoctoral fellowship at Brown University Medical School. While her Sproot stint focuses on the nutritional needs of the youngest children, her professional interests also lie with the issue of adolescent overweight and obesity. “They’re the forgotten age group,” Evans says.

—HELENE RAGOVIN





“I feel so privileged
to be a part of the Friedman School.
Creating an estate gift will be my
way of giving back to the school
that transformed my life. I want to
make sure that other people have
the same opportunity.”

KATYA TSAIOUN, N99, is not your typical Friedman School graduate. An expert in preclinical drug-discovery research, she is also an entrepreneur who founded the company Apredica, which she sold in 2010. Currently, she runs a consultancy for drug-discovery startups and is launching a lifestyle and nutrition management practice on Cape Cod.

Katya attributes her success to the Friedman School. She enrolled after earning her master’s degree from Leningrad Institute of Technology and having worked for a nutritional product company. At the time, she was also married and raising a young child. Unable to afford tuition, Katya was grateful the school pulled together a number of different resources to offer her full support.

Now Katya—a volunteer leader for the school’s Alumni Association Executive Council—is planning to create a scholarship through an estate gift to repay the community that nurtured her. “I really appreciate the help I received,” she says. “It’s very important to me that I contribute to someone else’s life in the same manner.”

To learn more about including a gift to Tufts in your plans, please contact Tufts’ Gift Planning Office 888.748.8387 giftplanning@tufts.edu www.tufts.edu/giftplanning

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MANGIA! MANGIA!

Eating a Mediterranean diet has been associated with lower rates of heart disease, cognitive decline, diabetes, Parkinson's disease, depression and some cancers. So it may surprise you to learn that there's no such thing as an official Mediterranean Diet—not in the sense that there's a South Beach or Zone or Atkins diet. For more on the story, turn to page 20.