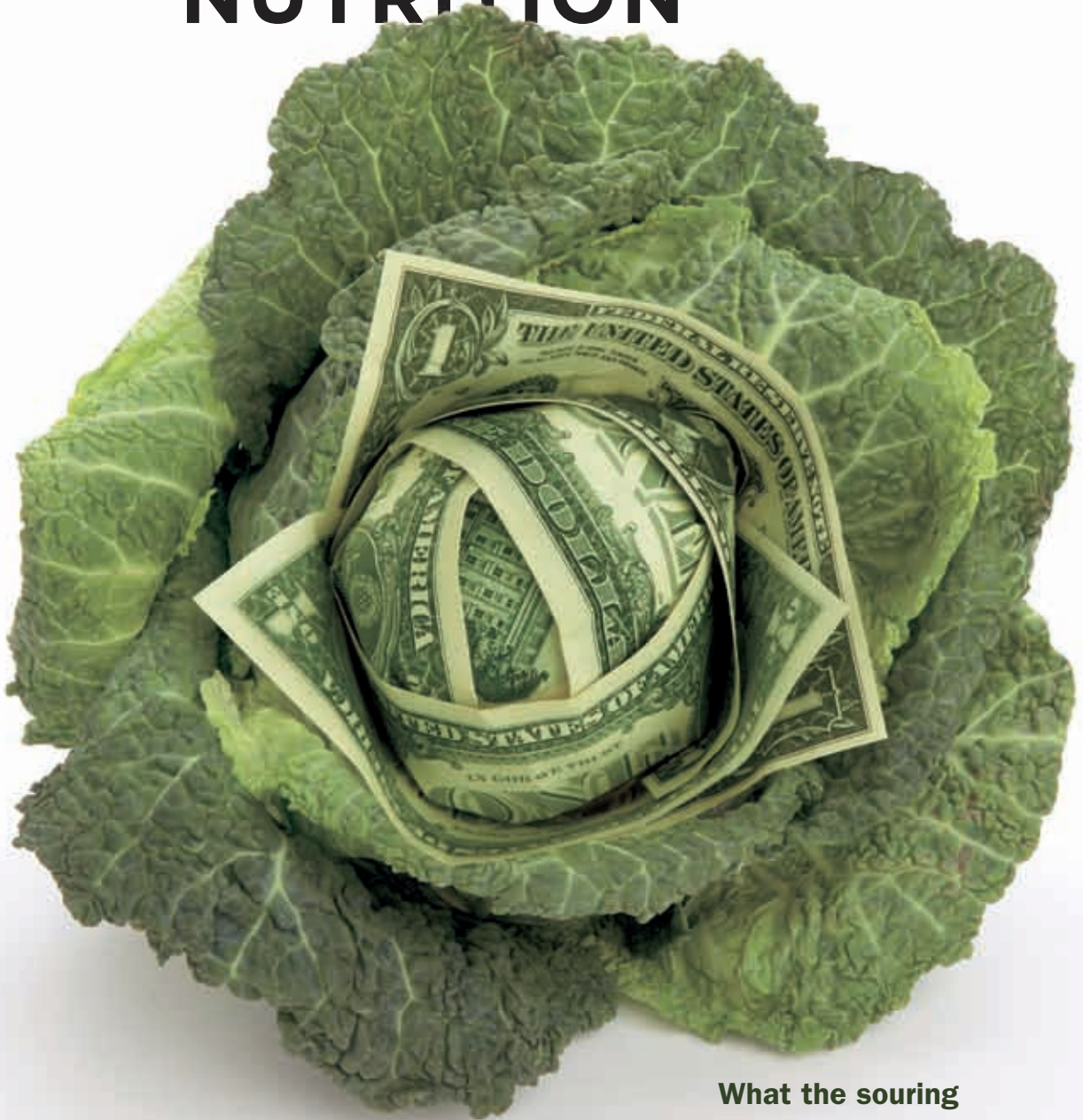


Tufts

NUTRITION



Stomaching

THE RECESSION

What the souring
economy will mean for
American diets

PLUS: PRACTICAL IDEALISTS • THE INSTINCT DIET • IMMUNITY BOOSTERS

What's the Buzz?

For this installment of "Ask Tufts Nutrition," Professor Susan Roberts, Ph.D., director of the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging, serves as our expert.

Q ■ **Why does caffeine give you energy?**
■ **And how much is too much?**

A ■ There are so many metabolic effects of caffeine that it has been hard to sort out which, exactly, are responsible for the increase in physical and mental energy that most users experience.

Caffeine is known to boost the effects of the neurotransmitters serotonin, dopamine and acetylcholine. Dopamine, for example, is known to affect levels of concentration. It blocks adenosine receptors in the basal forebrain, which, when not impeded, are what typically signal the brain when it's time to go to bed. Caffeine also increases the release of catecholamines (such as adrenaline) via the sympathetic nervous system, which, among other things, can make your heart beat faster, send more blood to your muscles and tell your liver to release sugar into the bloodstream for energy.

Caffeine can help muscles to contract by encouraging the sarcoplasmic reticulum in muscle fibers to release calcium ions, and it reduces the percentage of maximum exertion that a given exercise requires, to name just a few effects. Increasing circulating and intracellular substrate availability, or fuel for the muscles, occurs in response to changes brought on by caffeine, and may help to explain the perception of reduced exertion during exercise.

Research also shows that the amount of caffeine we consume matters. Consumption of 3 milligrams of caffeine per kilogram of body weight (about one to one and a half cups of brewed coffee) appears not to produce some of the energizing effects, and as much as 6 mg/kg may be needed. That's a lot of coffee, especially for women, considering that high caffeine consumption is linked to greater bone loss, not to mention jitteriness and sleeplessness. On the other hand, depending on your family history, because caffeine consumption is linked to a reduced risk of Alzheimer's disease, Type 2 diabetes and Parkinson's, it may feel like a bargain that works in your favor.

How much caffeine you consume is a personal choice. Research doesn't have all the answers yet, and being aware of the benefits we get from caffeine and understanding the potential downsides give us our own best solution.

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



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Cover photo illustration by Vito Aluia

A CHICKEN BONE TO PICK

Thank you for the article on the State Department-led effort to revive Iraq's domestic poultry industry ("Operation Chicken Run," Fall 2008). I applaud Major Jessica McCoy's commitment to improving the welfare of the Iraqi people.

However, I worry that the type of industrial poultry production being promoted by the State Department and many aid agencies is the same system that sustainable agriculture advocates have been fighting for years in the United States and Europe.

As students of the Friedman School's Agriculture, Food and Environment

Program should be aware, poultry waste in the amounts generated by industrial animal production systems, which typically confine thousands, if not tens of thousands, of animals indoors, does not simply make good organic fertilizer. Rather, it pollutes the air and water and threatens public health.

At what point will the United States stop exporting destructive technologies in the name of humanitarian assistance?

CHETANA MIRLE, PH.D., NO6
CAMPAIGNS MANAGER
HUMANE SOCIETY INTERNATIONAL
WASHINGTON, D.C.



On to Washington

Assistant Professor Kathleen Merrigan, flanked by her children, Fiona and Seamus Selmi, was sworn in as deputy secretary of agriculture by Judge Annette Forde on April 7. See story, page 24.

TALK TO US

Tufts Nutrition welcomes letters with concerns, suggestions and story ideas from all its readers. Address your correspondence, which may be edited for space, to Julie Flaherty, Editor, **Tufts Nutrition**, Tufts University Office of Publications, 80 George Street, Medford, MA 02155. You can also fax us at 617.627.3549 or e-mail julie.flaherty@tufts.edu.

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We welcome your letters.

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The Next Steps for Nutrition



THE WORLD OF NUTRITION HAS CHANGED DRAMATICALLY over the last 100 years. Less than a century ago much of the nutrition research in the United States focused on the discovery of essential vitamins and minerals. There were no dietary goals or guidelines, and the words nutrigenomics and epigenomics were in no one's lexicon. As the areas of emphasis continue to change, we need to examine the evolving nature of nutrition and its implications for research, training, programs and policies. With this aim, the Friedman School, in collaboration with the W. K. Kellogg Foundation, will sponsor a meeting in Washington, D.C., on June 1 to explore "Children's Health: The Future of Food and Nutrition Policy."

Some themes unite this Future of Nutrition effort. First, we need a more compelling link between basic nutrition research and our programs and policies. When I testified before a U.S. Senate Committee in December on the implications of the economic downturn for child nutrition, the majority of the questions were about how to more effectively use scientific research for the public good. This is a particularly critical year for this discussion as the child nutrition legislation—which affects programs such as school lunch and the Special Supplemental Nutrition Program for Women, Infants and Children (WIC)—will be reauthorized in 2009. The Future of Nutrition project seeks to identify how child nutrition programs can focus more on health and wellness, including the prevention of childhood overweight.

The Future of Nutrition effort will also emphasize the global face of nutrition. The stark contrast between nutrition issues in the United States and in developing countries has blurred in the past 20 years. Nutrition is now more complex. Although research on single nutrients is still important, researchers must look at discovery and application in the context of the total diet. Linked to this is the fact that public-private partnerships in food and nutrition are not only becoming more important, they are becoming the norm. Nutrition is no longer the exclusive responsibility of the public sector. The project will examine new paradigms of public-private collaboration to promote healthy lifestyles. It will also look at how policies around food and nutrition need to be revamped. Public policy has not acknowledged that around the world, food is increasingly not traded as food but as raw material input into consumer product processes. The United States leads the world in this area. This economic and philosophical shift has profound implications for

understanding the forces that shape individual nutrition and the ability to influence policy and practice.

Finally, a key element of success is leadership. This reminds me of former Tufts President Jean Mayer's statement that nutrition is an agenda, not simply a science. For the agenda to move forward, leadership is critical. The Future of Nutrition project focuses attention on the skills the coming generations of leaders will need and how this will change our emphasis in research and training. The meeting in June will bring together representatives from the U.S. executive and legislative branches of government, United Nations agencies, academia and the public health and anti-hunger communities.

A few words about two outstanding members of our faculty. José Ordovas has been selected for the 2009 Distinguished Faculty Award. He is not only world-renowned in the area of nutrigenomics, but equally important, he has trained and mentored hundreds of students. Congratulations, José.

Under the direction of Kathleen Merrigan, the Agriculture, Food and Environment Program has grown and flourished. Not surprisingly, given Kathleen's leadership strengths, she is now our nation's Deputy Secretary of Agriculture, overseeing the major nutrition programs in the United States and supervising a budget of \$95 billion. Good luck, Kathleen! This is a critical position at a critical time, and we wish you well.

EILEEN KENNEDY, D.SC.



Bone Basics

ADDING BICARBONATE TO YOUR DIET, WHICH CAN BE DONE BY EATING LOTS OF fruits and vegetables, leads to greater bone density, according to a study by Tufts researchers. Diets high in protein and cereal grains tend to increase acidity in the body, which can leach calcium out of the bones, reducing bone mass and increasing the risk for fractures. Bicarbonate, which is created when you eat produce, helps boost alkali levels in the body, neutralizing the acidity and its negative effects on bones, the study says.

Participants in the double-blind study—171 men and women ages 50 and older—were divided into groups that received either a placebo or doses of potassium bicarbonate, sodium bicarbonate or potassium chloride for three months. The people who took bicarbonate showed significant reductions in calcium excretion and bone resorption.

While low levels of calcium and vitamin D are often considered culprits in bone loss, “there is increasing evidence that the acid/base balance of the diet is also important,” according to the report, which was written by Bess Dawson-Hughes, M.D., M75, director of the Bone Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts. On average, American diets tend to be slightly acidic.

“Increasing intake of alkali merits further consideration as a safe and low-cost approach to improving skeletal health in older men and women,” the report concludes.

The study was published in the January issue of the *Journal of Clinical Endocrinology & Metabolism*.

Vitamin K Slows Insulin Resistance

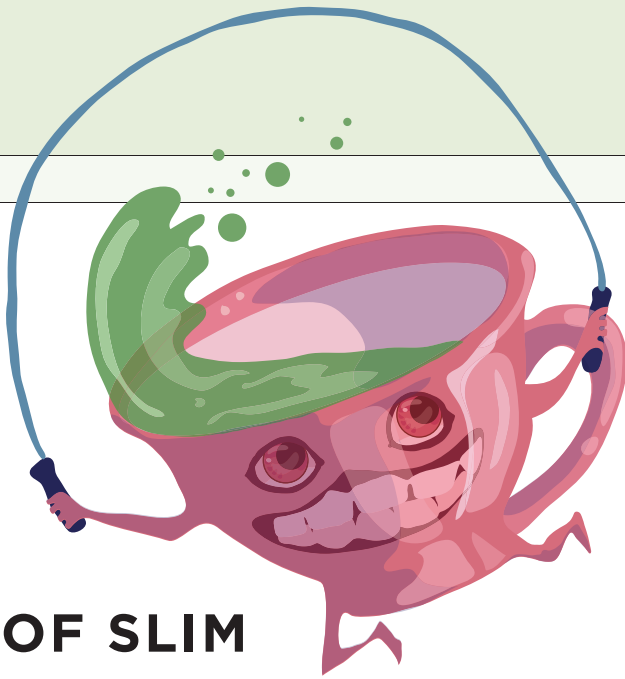
Elderly men who took vitamin K supplements slowed the progression of their insulin resistance over a three-year trial.

Insulin resistance, which is a precursor to diabetes, occurs when the body cannot use insulin properly, causing glucose to build up in the blood.

The researchers did not see a difference in the women they studied, which they speculate may be because the women in the group tended to be more overweight than the men.

“Vitamin K is stored in fat tissue,” says Professor Sarah Booth, Ph.D., senior author of the study, which appeared in *Diabetes Care*, and director of the Vitamin K Laboratory at the HNRCA. “If there is excess fat, vitamin K may not be readily available to cells that require it to process glucose.”

Although supplements of 500 micrograms were used, the authors say the dosage is attainable by eating a healthy diet. Good sources of vitamin K include Brussels sprouts, broccoli, spinach and collard greens.



A CUP OF SLIM

GREEN TEA HAS LONG BEEN TOUTED AS A WEIGHT-LOSS AID. BUT IF IT'S true, how does it work? A clue may come from a recent study, which found that people who exercised moderately and consumed nutrients called catechins, found in green tea, were more likely to lose abdominal fat while exercising than those who didn't take them.

The study, published in the *Journal of Nutrition*, divided 107 healthy but normally sedentary and overweight adults into two groups: those who received beverages with the green tea catechins and those who did not. They were then put on an exercise regime for 12 weeks.

Those who consumed the catechins had "a trend toward greater loss of body weight ... compared with the control group," the researchers wrote. Even though the levels of total body fat for the two groups wasn't greatly different at the end of the study, it turned out that the catechin-drinkers showed significant losses of abdominal and subcutaneous abdominal fat and in serum triglycerides, a type of fat in the blood that, in high levels, has been linked to heart disease and stroke.

The daily dose of catechins in the study was 625 mg. An average cup of green tea has between 150 and 250 mg, depending on how long it is steeped.

"Catechins are widely distributed in plant foods," says Professor Jeffrey Blumberg, Ph.D., director of the Antioxidant Research Laboratory at the HNRCA. "However, the richest dietary source by far is tea—white, green, oolong and black," though green tea has the highest concentrations.

GUIDELINES FOR GETTING ACTIVE

Associate Professor Miriam Nelson, Ph.D., director of the John Hancock Research Center on Physical Activity, Nutrition and Obesity Prevention at Tufts, was vice chair of the committee that created the federal government's first-ever Physical Activity Guidelines for Americans. Among their findings:

- Some physical activity is better than none.
- You can get most health benefits by engaging in moderate-intensity physical activity, such as brisk walking, at least two hours and 30 minutes a week.

Additional benefits occur with more physical activity.

- Episodes of activity that are at least 10 minutes long count toward meeting the guidelines.
- Both aerobic (endurance) and muscle-strengthening (resistance) physical activity are beneficial.
- The benefits of physical activity outweigh the risks of injury and heart attack.



Check out the full guidelines at www.health.gov/PAGuidelines/default.aspx.

Reading, 'Riting and Recess

This should make gym teachers jump for joy: A study of children attending public schools found that students who were physically fit scored better on standardized academic achievement tests than their less-fit peers.

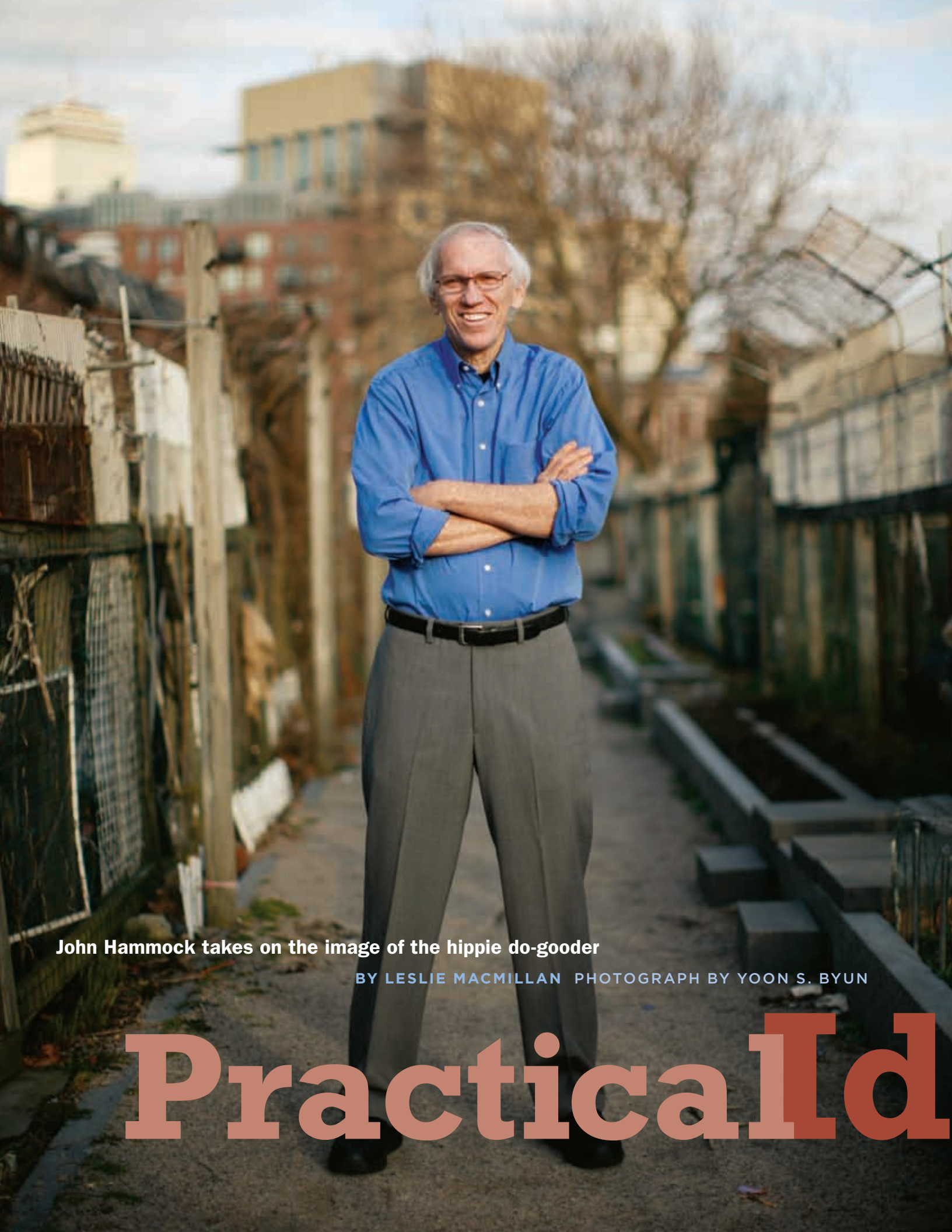
The study, published in the *Journal of School Health*, was the work of Virginia Chomitz, Ph.D., N85, N92, a senior

scientist at the Institute for Community Health, and her colleagues.

The researchers compared the physical fitness of 1,500 Cambridge public school students in grades 4 to 8 to the students' scores on the math and English components of assessment tests.

The researchers could not say for certain that it was physical fitness that

caused the students to do better on the exams. The high-scorers could just be motivated students in that they "strive for achievement in both academics and physical fitness or athletics," the study said. But the research may give pause to the 14 percent of U.S. school districts that reported cutting gym classes to fit in more time for math and English.



John Hammock takes on the image of the hippie do-gooder

BY LESLIE MACMILLAN PHOTOGRAPH BY YOON S. BYUN

PracticalId

Nutrition students ARE OFTEN DRAWN TO THE FIELD BY THEIR OPTIMISM—a drive to end hunger, or a vision of a healthier planet. But when they get their degree, they may find themselves saddled with student loans and nurturing the idea of one day getting married, buying a house and eventually sending their own kids to college. Is this vision consistent with tramping across the red dust plains of Africa, doling out rice from a sack?

Being an idealist doesn't necessarily mean taking a vow of poverty, says John Hammock, Ph.D., F68, F71, an associate professor of public policy at the Friedman and Fletcher schools. Having taught ethics and its relationship to international humanitarianism since 1996, Hammock is very familiar with the complex dilemma of how to balance altruism with personal needs.

"Students would come back to me years after they graduated and tell me they were doing jobs they didn't want to do, working for some large private corporation," he says. "Most graduate students want to save the world, but they don't want to be Mother Teresa."

But how do you achieve that? To help, Hammock and Alissa S. Wilson, F05, now a policy advocate for the American Friends Service Committee, interviewed 50 people who give back through jobs they love and published their advice in the book *Practical Idealists: Changing the World and Getting Paid* (Harvard University Press). It is a how-to manual for people who want to work on social issues and still earn a living.

"The book doesn't prescribe anything," Hammock says. Instead, through questions and exercises, the authors encourage readers to examine their values, passions and skills. Money, for example, is a big obstacle to taking a job outside the private sector. Readers, Hammock says, should ask themselves, "How much is enough?"

Samantha Yu, who analyzes family social service programs for the city of Los Angeles, relates in the book that accepting a modest salary was not "a huge adjustment" for her. "I grew up in a very typical middle-class family," she says. "My salary will support

that. It's not as tough as it might appear."

To know what you want out of a career, Hammock says, you have to understand your own identity. His own political awareness was fostered by his expatriate childhood in Cuba, where his father, an American, had taken a job at the island's first Woolworth's store. The overthrow of Batista's dictatorship, which Hammock witnessed at age 14, filled him with ideas of justice and social change. "The Cuban revolution struck a real chord with me," he writes on www.practicalidealists.org, the companion website to the book. Although he recognized the evil perpetuated during the upheaval, "the rhetoric of equality, of equal access, of racial harmony all made tremendous sense," he writes.

"From an early age, I knew I wanted to work with poverty issues, knew I wanted to work in Latin America," he says. He went on to serve as executive director of Oxfam America from 1984 to 1995 and to found the Feinstein International Center at Tufts. He is the North American director of the Oxford Poverty and Human Development Initiative, a research center at Oxford University.

Hammock sees the same idealism that inspired him in his Tufts students. Yet he says the crunchy-granola image of the '60s hippie do-gooder is gone, replaced by a practical

approach to working for social change that cuts across many professions. A lawyer or an engineer has just as much potential to save the world as a social worker or a human rights activist.

James Forman Jr., a former public defender, reflects in the book that "we have so few quality lawyers [as public defenders] and we pay them so little. The results are what we see—a lot of people who don't get due process. So I thought ... let me put myself on the front lines." Similarly, Attorney Mel Rodis uses her small law practice in Phoenix, Ariz., to represent immigrants who are victims of slavery, debt bondage and indentured servitude.

There are many approaches to making major life decisions, the book notes. Chris Estes, a low-income housing advocate, took part in a vocational retreat, while Josh Dorfman, who specializes in eco-friendly design and green homes, "drank micro-brews and learned the chords for the 'House of the Rising Sun'" before settling on how to put his MBA to best use. How you do it doesn't matter, the authors write. "The crucial actions are to stop and think—to develop a steady habit of reflection."

As Hammock puts it, "Some people need to go on a silent retreat, other people need to buy a six pack of beer, and others need a cold shower." Taking the time for reflection isn't easy, he adds, "because students are so busy. But you have to. If you don't, all of a sudden you'll be in the job market, and if you haven't taken that time, it's going to be hard."

It can be even harder to make a transition mid-career. "You talk to people who are 45, and at that point, they're often locked in," Hammock says. He hopes the book will get them when they're young. But that means getting his students' heads out of a book from time to time, too.

"Academia is a lot about ... well, academics," Hammock says with a laugh. "In academia we fill people's heads with theory—which we need. But we don't spend a lot of time talking about who we are. The book talks more to the heart, and gets the heart and the head to move together." **TN**

Leslie Macmillan is a writer/editor in Tufts' Office of Publications. She can be reached at leslie.macmillan@tufts.edu.

realists



PHOTOGRAPH BY
BILL CARDONI

A DASH OF STAR QUALITY

With a mission to bring healthy cooking to the masses, Katie Cavuto, N04, vies to become 'The Next Food Network Star' **BY HELENE RAGOVIN**

KATIE CAVUTO, N04, thought her competitive days were over when an injury during college curtailed her ambitions as a gymnast. She turned instead to a culinary career, becoming a registered dietitian, personal chef, entrepreneur and regional television personality.

But now Cavuto is dusting off her competitive skills for an entirely different type of agility contest: She's vying to become "The Next Food Network Star."

On the Food Network reality show of the same name, Cavuto and nine other cooks will face off this summer for a chance to host a show on the cable network that made Emeril, Alton and Giada into household names—at least in those households that include a Microplane grater.

Cavuto is the owner of Healthy Bites (www.healthybitesdelivery.com), a combination cooking and nutrition service based in Philadelphia's center city. She is also a well-known face on local Philly TV stations, where she does snappy, practical segments on topics like "Cooking on a Budget" and "The Fattiest Foods of Summer."

"I have so much really important information that I want to share with people, and I wanted to find the best way to relay this information to the largest audience possible," she says.

"The Next Food Network Star" is basically a cross between the kitchen wizardry of "Iron Chef" and the populist one-upmanship of "American Idol." The finalists take part in high-pressure cooking challenges designed not just to show off their kitchen skills, but to prove they have a personality that millions of foodies could love. Each week, another finalist loses his or her place at the stove.

And the challenges go far beyond getting dinner for four on the table after work. This season, for example, the finalists will be asked to cater a party for a roomful of Food Network stars and cook for returning soldiers aboard the aircraft carrier at the Intrepid Sea, Air & Space Museum in New York City. While the judges may not include the acerbic Simon Cowell, neither are they inclined to be particularly merciful.

But Cavuto is not one to be deterred. While a student at Penn State, where she was majoring in kinesiology, she suffered an injury that left her unable to continue in competitive gymnastics. "Being a gymnast

was so much a part of my identity that when it was ripped away from me prematurely, it was a pivotal moment in my life," she recalls.

It wasn't long, however, before a trip to Europe led her to turn her considerable energies toward cooking. "The relationship with food in Europe is so different than what it is here," she says. "It's almost like a spiritual experience." On her return to the United States she enrolled at Johnson & Wales University in Rhode Island, which had just started a culinary nutrition program. "I learned to appreciate food on a level I never had before," she says, citing classes like spa cuisine, vegetarian cuisine and sports nutrition.

After receiving an associate's degree in culinary arts and a bachelor's in culinary nutrition, Cavuto came to Tufts for the combined dietetic internship and master's degree program at the Frances Stern Nutrition Center, where she fell in love with clinical nutrition. "Cooking fell to the back burner," she says.

While she was working at Graduate Hospital in her native Philadelphia, CNN Headline News called looking for someone to do a segment on healthy grilling for the Fourth of July. She was soon doing spots on Philadelphia's NBC, CBS and FOX affiliates.

Last year she left clinical practice to open Healthy Bites, where she counsels clients on healthy eating, gives cooking lessons, prepares food in their homes, delivers complete dinners and caters parties and other events.

"I'm coming into their homes and giving them all the tools they need to live a healthy lifestyle," she says.

Cavuto highlighted her Healthy Bites philosophy in her audition video for "The Next Food Network Star," which was filmed in one take by her husband, Andy Boyle, using their digital camera. "On the audition tape, I made a dish with whole-wheat pasta, chicken sausage, broccolini, cherry tomatoes and ricotta cheese," she says. "I built the dish around the protein and the vegetables, and I added the pasta at the end to show how you can recreate and rethink a traditional meal to make it healthier and more figure-friendly."

The trip from that video to the Food Network still surprises Cavuto. "I'm still pinching myself," she says.

Season 5 of "The Next Food Network Star" will air beginning June 7 at 9 p.m. E.T.; the finale will air August 2. **TN**

Get Defensive

What you need to know about nutrition and immunity

BY JULIE FLAHERTY

ILLUSTRATION BY MICHAEL AUSTIN

WHEN COLD SEASON ROLLS AROUND, MANY SNIFFLE-FEARING ADULTS AUTOMATICALLY reach for their C tablets, their zinc lozenges and their developed-by-a-school-teacher vitamin and herb concoctions. Yet overall, experts have found little to no evidence that vitamin C prevents or treats the common cold. Studies on using zinc to diminish the severity or duration of cold symptoms are inconclusive. Same goes for Echinacea.

“When I see advertisements on TV calling something an immune booster, I cringe, because most of them, as far as I know, are not based on complete and well-done studies,” says Simin Nikbin Meydani, D.V.M., Ph.D., director of the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts.

That doesn’t mean that nutrition isn’t crucial to your ability to fight illness. Scientists have known for more than 60 years that a poor diet puts the immune system into free-fall. That is why diarrhea and pneumonia are life-threatening illnesses in parts of the world where malnutrition is prevalent.

“You need all of the essential nutrients. There is no exception for that,” says Meydani, who also heads the Nutritional Immunology Laboratory at the HNRCA. “Whether it’s lipids, proteins, vitamins, minerals or trace minerals, you need to have them. If you have a deficiency, you can impair the immune response.”



The reason, she says, is that our bodies use specialized cells to fight each of the thousands of pathogens we are exposed to. But if our bodies stocked the number of cells we would need for the job, we would be Costco-sized cell warehouses. “So the way nature dealt with it was to have very few of particular types of immune cells, and when they see a pathogen they recognize, in order to get rid of it, they increase their numbers immediately; they expand and proliferate.” The nutrients we keep in reserve become the building blocks of those antibodies and white blood cells.

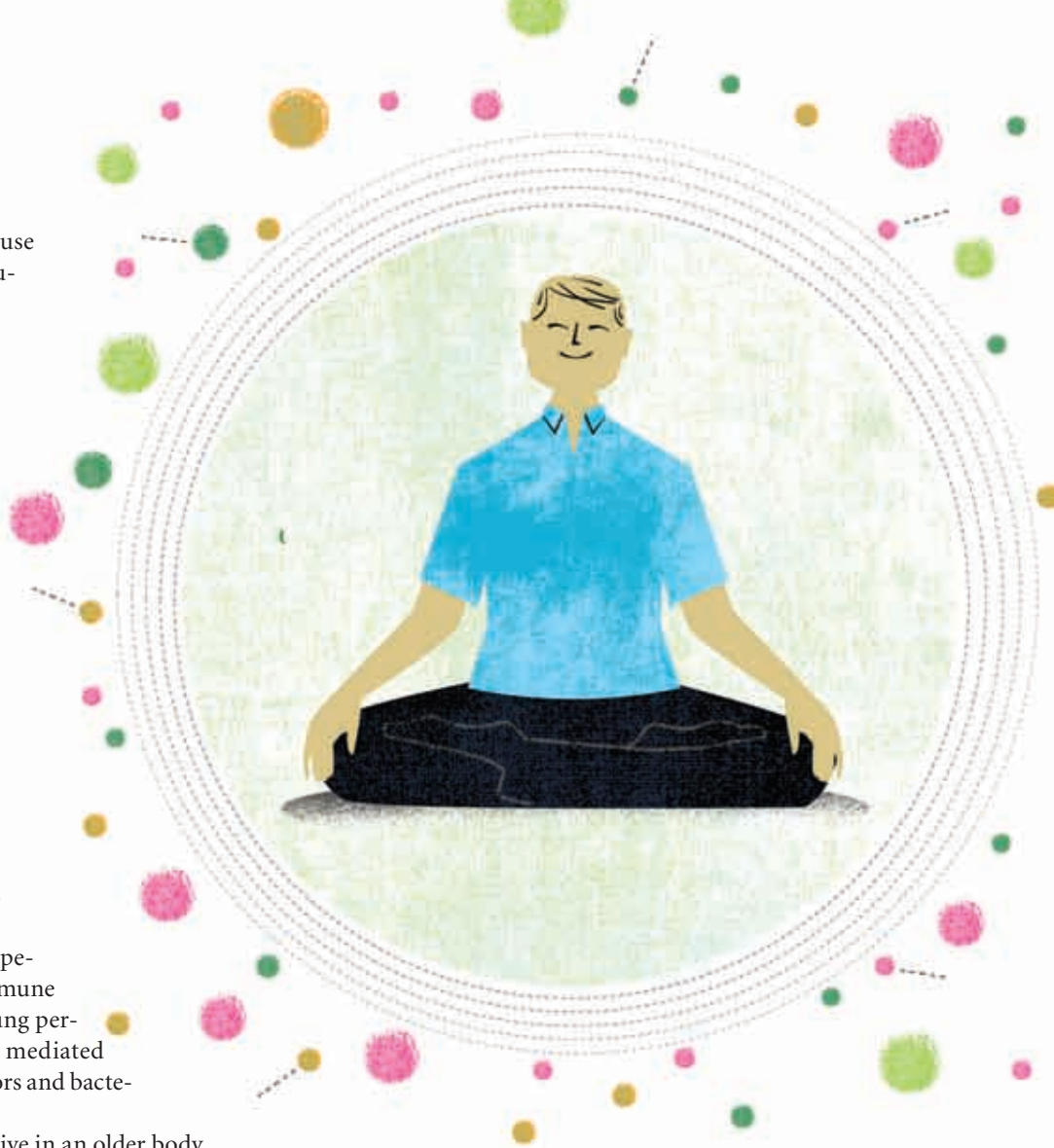
“The question people have been asking is, ‘Does this mean that if I go and take more of these nutrients I will have a better immune response?’” As yet, there are no miracle pills, Meydani says, but “there is some evidence that for some nutrients for some age groups that is the case.”

The elderly, for example, may warrant special attention. “When you get older, your immune response does not function as well as a young person’s,” Meydani says. In particular, T-cell mediated function, which fights against viruses, tumors and bacterial infection, slows down.

Germes also appear to turn more aggressive in an older body. While working on her thesis in the Nutritional Immunology Laboratory, Raina L. Gay, Ph.D., N99, N05, and her colleagues conducted a study that showed a benign virus, when put into an old mouse, is more likely to mutate into a virulent form. “This could be because there is higher oxidative stress in an older host,” Meydani says, referring to the reactive molecules that damage cells. “Or it could be because there are differences in the receptors that allow the virus to enter into the old host and proliferate at a higher rate. When viruses proliferate, the chances of mutation increase.”

To find out if higher doses of vitamins could help older adults maintain their defenses, the immunology lab conducted several studies with Boston-area nursing home residents. They found that when they gave the senior citizens 200 milligram supplements of vitamin E—which is higher than the current Recommended Daily Allowance—they came down with fewer upper respiratory infections, such as colds and sore throats.

The researchers did not see any effect on lower respiratory infections, such as pneumonia. But this could be further evidence that when it comes to supplements, one size does not fit all. When Sarah Belisle, Ph.D., A03, N05, N08, and her colleagues looked at the genetic backgrounds of the nursing home residents who took the vitamin E, she found that the elderly with a certain form of a particular gene did have fewer lower respiratory infections, while those who had a different version were unaffected.



Meydani says the interaction between genes and nutrition could help explain why clinical studies of vitamin E and cardiovascular disease have returned less-than-promising results. In some people, the supplements might work. In their genetic foils, they might not.

Tread carefully when it comes to supplements. Fruits and vegetables have phenolic compounds, which can have anti-inflammatory properties, Meydani says, but people should hesitate about taking a whole lot of purified phenolic compounds in supplement form. “When you have them in fruits and vegetables, you have them in combination with other nutrients, and they could have synergistic or opposing effects with each other,” she says. For example, Harvard scientists found that people who drank five cups of tea a day secreted 10 times more interferon, an immunity marker, than those who drank the same amount of placebo. But when Dayong Wu, Ph.D., an assistant professor at the Friedman School and a scientist in the Nutritional Immunology Lab, fed catechins, a type of polyphenol extracted from green tea, to laboratory mice, he found it decreased the ability of their T-cells to proliferate.

That doesn’t mean there might not one day be a go-to food for immune system health. Wu and his colleagues have been taking a close look at mushrooms, which have been used as a functional food for thousands of years in Asia, where they are used medicinally

to fight tumors. Recent studies have indicated that mushrooms do not directly kill tumors, but may inhibit them by enhancing the immune system.

Wu fed mice a diet containing white button mushroom powder in doses that would translate to two or ten cups of fresh mushrooms per day for a human. The animals showed enhanced activity in their natural killer cells, components of the innate immune system.

“Natural killer cells’ main function is to kill viruses,” Wu says. “They also perform surveillance for malignant cells that could potentially form tumors.”

But before you dig out your mushroom stir-fry recipes, you should know that “there is still a long way to go before we can claim that mushroom consumption can boost the immune function in humans,” Wu says.

IN THE MEANTIME, here are some science-backed immunity boosters:

Put on your sneakers

Several studies have linked moderate exercise with immune function. When your heart gets pumping, it’s easier for your blood to circulate the immune cells that kill off bacteria and viruses. This effect stops a few hours after your gym session ends, but consistent regular exercise seems to have a cumulative effect. In one set of studies, women who walked briskly for 35 to 45 minutes five days a week reported about half the number of sick days as their sedentary peers. That said, while some exercise is good for fighting germs, very intensive, sustained aerobic exercise is not necessarily better. “Studies have shown that when you do a marathon run, you become more susceptible to infections,” Meydani says.

Don’t worry, be happy

Your immune system doesn’t function as well when you are stressed out. Tests on some under-pressure volunteers—including medical and dental students and caregivers of Alzheimer’s patients—found they were more likely to develop colds, were less responsive to vaccines and were slower to heal from wounds than their less-harried counterparts.

Why would this be? The nervous system and the immune system, scientists are finding, interconnect. For example, emotional stress causes the body to release cytokines, the same immune system messengers that initiate an inflammation response against infections. Researchers suspect that when the body churns out high levels of these cytokines over a long period of time, it tunes down the immune response.

On the flip side, calming, meditative exercises, such as tai chi, have been shown to improve immune system activity. Stated positively, “There is a nice mind-body connection when it comes to immune response,” Meydani says. “That is why when college students are studying for final exams, they need to have good nutrition rather than eat junk food.” So much for pulling an all-nighter fueled by a pint of Ben & Jerry’s. Getting a good night’s sleep, by the way, also boosts active killer cells.

Eat your fruits and vegetables

You knew this one was coming. Most any colorful produce will help keep immunity thriving through their carotenoids, vitamins C, B6 and folate. News stories about immunity “superfoods” tend to recommend gorging on specific plants, such as garlic, bell peppers, ginger or pumpkin during the flu season. All are healthful and delicious, but there is no need to play favorites. Variety will not only diversify your nutrient portfolio, it will make you more likely to eat the recommended five to nine servings a day.

Keep dietary fat down

A 2003 Tufts study compared people who ate a typical western diet (38 percent fat) to those on a cholesterol-lowering diet (28 percent fat) and found the low-fat dieters had better T cell function. The kind of fat may matter, too. While you should definitely limit saturated and trans fat, you might also want to keep an eye on your polyunsaturated fats. A review by Meydani and Wu concluded that a diet very high in omega-3 fatty acids, including fish oil, can suppress immune function.

“It might be good for your heart, but it is not necessarily good for your immune system,” Meydani says, emphasizing that she is talking about excessively high consumption. “When you saturate your cells with a whole lot of unsaturated fatty acids, they are susceptible to oxidation.”

Don’t go to extremes. If you cut your fat intake too much, you might miss out on vegetable oils and nuts, which are good sources of essential vitamin E.

Lose those extra pounds

If looking good in a swimsuit for your beach vacation isn’t incentive enough, losing extra weight can also keep you healthy on the trip. “We’ve done studies with people who are slightly overweight that show when you reduce their caloric intake, you improve their immune response,” Meydani says. Losing even a few pounds can rev up T cell function. An ongoing caloric restriction study, conducted with Professor Susan Roberts, Ph.D., director of the HNRCA’s Energy Metabolism Laboratory, is yielding similar results and revealing clues about why this might be. **TN**

“When I see
advertisements
on TV calling
something an
immune booster,
I cringe.”

—SIMIN N. MEYDANI

STOMA



WATCHING the Recession

What the slumping economy will mean for the American diet

THE LANGUAGE OF A TOUGH ECONOMY CALLS FOR “TRIMMING THE FAT” AND “downsizing” for “lean times.” If only our bodies went along with the metaphor. For nutrition researchers, the big recession question is not whether we will have to tighten our belts, but whether we’ll be able to squeeze into our pants. This very serious concern stems from two facts. First, the United States is struggling with obesity in epidemic proportions. And second, Americans who have low incomes are more likely to be overweight or obese. Logic predicts that shrinking paychecks will only exacerbate the obesity problem. And as weight increases, so will diabetes, high blood pressure and heart disease.

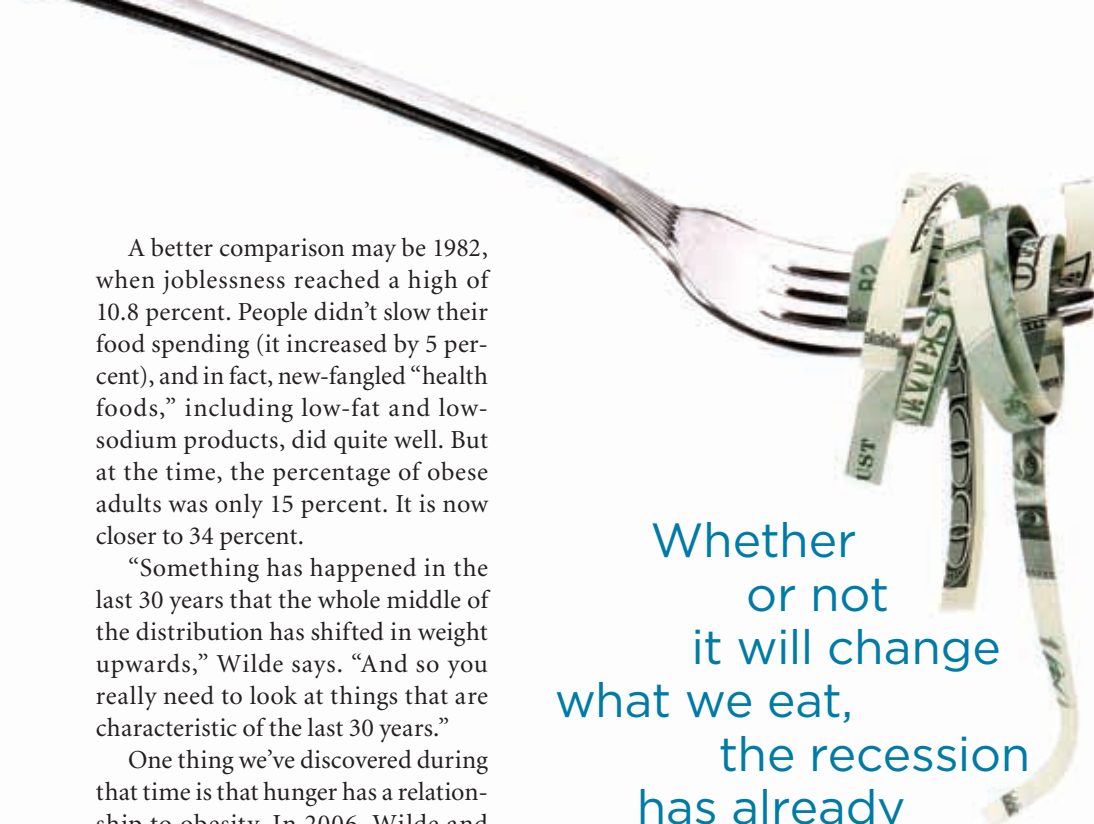
As grim as the data look, as destined as we seem to pack on more pounds, some experts who follow America’s battle with weight say it is more complicated than that. Food prices and dietary habits will play a role, but so will personal priorities. Some Americans will become savvy shoppers, while others will look at their 401(k) statements and forget everything they knew about portion sizes.

“How people respond will depend a lot on who they are as individuals,” says Professor Jeanne Goldberg, Ph.D., G59, N86, director of the Nutrition Communication Program at the Friedman School. “A lot will depend on the importance people place on their

personal health and the health of their families.”

If we look to history for clues as to what size jeans we will be wearing in 2011, our past recessions serve as imperfect precedents. The Great Depression may be the closest equivalent to the current economic crisis, but the nutritional landscape was very different then. “There were no televisions; levels of restaurant consumption were vastly lower; processed food consumption was much lower; and levels of physical activity were higher, especially among lower-income people,” says Parke Wilde, Ph.D., a food economist and an associate professor at the Friedman School.

BY JULIE FLAHERTY PHOTOS BY VITO ALUIA



A better comparison may be 1982, when joblessness reached a high of 10.8 percent. People didn't slow their food spending (it increased by 5 percent), and in fact, new-fangled "health foods," including low-fat and low-sodium products, did quite well. But at the time, the percentage of obese adults was only 15 percent. It is now closer to 34 percent.

"Something has happened in the last 30 years that the whole middle of the distribution has shifted in weight upwards," Wilde says. "And so you really need to look at things that are characteristic of the last 30 years."

One thing we've discovered during that time is that hunger has a relationship to obesity. In 2006, Wilde and Friedman School doctoral student Jerusha Peterman, N11, published a study showing that women who have difficulty putting food on the table every day are 58 to 76 percent more likely than other women to be obese or gain weight over time. Other studies have drawn similar conclusions. One found that toddlers whose families have gone hungry are three to four times as likely to be obese.

The reasons behind this nutritional paradox are unclear, but it is no secret that junk foods filled with calories, refined grains and sugars are a cheap and easy way to fill up. This has spurred Wilde to get to the bottom of a question that has plagued public health officials and shoppers alike: Does it simply cost too much to eat a healthy diet?

REAL COST OF FOOD

To help answer this, Wilde and two graduate students, Joseph Llobrera, N09, and Flannery Campbell, N08, created a software program called the Thrifty Food Plan calculator. It is based on the data the USDA uses to determine food stamp benefits. With the disclaimer that the application is geared toward food policy wonks ("It's an analysis tool rather than a self-help tool," he says), Wilde feeds it some information about how much he eats from different types of food groups each month, and it spits out an average daily food cost. He can ask it to follow either My Pyramid personalized eating plan recommendations or the Dietary Guidelines

Whether
or not
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the recession
has already
changed
where we eat.

for Americans. But he can add other constraints, such as how many servings of whole grain he's willing to consume, and how many calories he wants. The calculator also measures how closely the meal plan tracks the typical consumption patterns of low-income Americans.

According to the calculator, eating nutritiously is not inherently expensive. But the closer one tries to adhere to the typical American diet, with significant amounts of meat and dairy, the more expensive it becomes.

Wilde plugs some new variables into the calculator, and *presto*: If people are willing to get some of their protein from legumes rather than meat, and some of their calcium from vegetables rather than dairy, they can fulfill all their nutritional requirements on less than \$5 a day.

This mirrors Wilde's experience in his own neighborhood, where he and his family have hosted some community meals in an experiment to see how they could spend less without feeling deprived. Some 40 people attended a dinner in February, where the menu was chicken curry, lentil

dal and coconut black-eyed peas over large volumes of white and brown rice, with carrot sticks on the side and fruit salad for dessert. The cost was a mere \$1.40 per person.

Of course, just because people *can* cook nutritiously for a buck and half, doesn't mean they will. This leads some researchers to believe that in the United States, price is not necessarily the deciding factor when it comes to food purchases. Taste and convenience seem to be much more influential in people's food decisions.

Take fruits and vegetables. In September 2008, Wilde gave a briefing for House of Representatives staff in Washington, D.C., on the topic of rising food prices, in which he noted that the prices of fruits and vegetables have risen at a higher rate compared to other food categories.

And yet, according to the Economic Research Service of the USDA, having more money doesn't necessarily translate into shopping bags full of produce. Nearly all households—not just low-income households—consume low amounts of fruits and vegetables relative to Dietary Guidelines for Americans recommendations. A household making \$10,000 to \$15,000 a year spends about \$50 a month on fruits and vegetables; a household making five times that spends only \$57 a month, or \$7 more, on produce.

The poorest Americans, Wilde stresses, are very poor, and he worries that they will suffer during the recession. Yet compared to much of the rest of the world, "food spending is a small part of our budget," ranging from 37 percent of take-home pay for the poorest families to about 9 percent for those making \$70,000 or more.

He fears families will be more affected by other hard



choices, like whether to give up a college education, than by their food decisions. “We have a national entitlement program for food, which has an automatic recession response component. But there is no similar program for housing in the United States. And there is not really a transportation entitlement,” he notes.

LET’S EAT IN, HONEY

Whether or not it will change what we eat, the recession has already changed *where* we eat. A survey conducted in February and March by the consulting firm AlixPartners found that 88 percent of respondents had cut back on eating out. As early as May of 2008, Information Resources Inc., a market researcher, reported that 53 percent of consumers said they were cooking from scratch more than they did just six months before.

Dining in can be good. On average, the foods people eat while away from home are higher in calories, saturated fat and salt but lower in fiber and micronutrients like calcium than the foods they eat at home, according to the Economic Research Service. Note that this is what people *choose* to eat: To be sure, many restaurants offer healthful options in their menus, but those are not the foods people pick most often.

“You can splurge on your home cooking and still wind up nutritionally better than you do on prepared foods,” Wilde says. “Salt is a big one. Few people realize the problem with salt isn’t about salt shakers, it’s about

processed and restaurant foods,” which rarely list their sodium contents.

How big an effect could cutting back on dining out have on our waistlines? A substantial one, if you consider how much we eat out. Households with annual incomes of \$10,000 to \$15,000 spend one in four of their food dollars away from home. As income rises, so does the proportion of restaurant spending, with households that make more than \$70,000 a year spending nearly half of their food dollars on non-homemade meals.

All eyes have turned to the golden arches, the emblem of our super-sized eating habits. To be sure, McDonald’s posted a better-than-expected third-quarter profit last year, accompanied by a 7 percent jump in global sales.

Wilde is not surprised. “McDonald’s has had essentially a good-quality, low-priced economic strategy for decades, and so they’ve built up a huge amount of consumer awareness on that strategy,” McDonald’s, it seems, will always survive, but “restaurants as a whole are not going to do well” in the recession, he says. “The overall restaurant sector is going to have hard times.”

COOKING IN DECLINE

Celebrity chef Jamie Oliver agrees that home cooking can be a good way to save money.

“If you have knowledge about how to cook, you will know how to buy efficiently and cheaply,” he recently told the parliamentary committee that oversees the U.K. Department of Health. There’s a problem, though. “This is the first time in British history that we have a large number of people who cannot cook,” he

said. As a result, he predicted, unhealthy eating will probably increase in the recession.

The cooking-skills deficit is not yet well studied, in part because we have little data on the kitchen abilities of yesteryear with which to compare. Yet there is no denying we have far fewer home economics classes, and lots more frozen, microwave-ready pizzas, than we did 50 years ago.

Jeanne Goldberg says a decline of cooking skills has unfortunate implications for American diets. “Knowing how to cook in addition to knowing what to cook is really helpful in getting people to continue to eat healthfully,” she says.

Some studies have shown that people who are confident in their cooking skills cook more often than those who aren’t. They also suggest that knowing how to cook influences food choices. Mothers who improve their cooking skills tend to use a wider variety of foods, and children become more adventurous in what they eat when they take part in cooking.

While convenience foods have their place in the kitchen, Goldberg says, she could see as early as the 1970s that a simple thing like frozen orange juice concentrate was muddling people’s understanding of food. “I can vividly remember going to my children’s preschool and showing the kids how to make fresh-squeezed orange juice,” she says. “They were totally amazed that orange juice indeed came from oranges.”

Cooking from scratch doesn’t have to be a complicated or time-consuming activity, she says. “It isn’t really labor-intensive to cook dried



A NEW ROLE FOR FOOD STAMPS

Lawmakers are debating the role government should have in running the banks it is bailing out. But should the government, some ask, also have some say in the diets it subsidizes? The notion has gotten more attention since the number of Americans on food stamps grew to a record 31.5 million in September 2008.

The food stamp program, recently renamed the Supplemental Nutrition Assistance Program (SNAP), helps many low-income people avoid hunger, but it does not dictate the kinds of foods people purchase. Public health advocates have long sought to align the food stamp program with healthy eating and were pleased when Tom Vilsack, the new agriculture secretary, said he would put "nutrition at the center of all food-assistance programs."

Yet Kumar Chandran, NO7, a nutrition policy specialist with California Food Policy Advocates (CFPA), says the idea of restricting food stamp purchases to foods deemed healthy is "controversial and complicated."

"People talk about it being too paternalistic, as in 'Who are you to say people shouldn't buy certain foods?'" Chandran says. "Aside from the moral standpoints, there is the logistical problem of who is to define what is good and what is bad." Should a high-fat avocado be forbidden? Does calorie-free soda get the thumbs up as nutritious?

Last year, CFPA lobbied for a bill in California to create a pilot program that would take a middle ground. "It would basically provide incentives for food stamp

participants to purchase fruits and vegetables" by giving consumers a produce rebate at the checkout, Chandran says. "It's not prescribing anyone a diet, but it's a good way to get people to eat healthier."

The program, which was signed into law but has not yet been funded, got the attention of federal lawmakers. In the 2008 Farm Bill, Congress allocated \$20 million for projects that would give SNAP recipients point-of-purchase incentives "to purchase fruits, vegetables or other healthful foods."

The issues surrounding nutrition and food stamps are nothing new, but Chandran says that lawmakers are more attentive now that millions more have signed up for food assistance. "It shines a light on a problem that existed before the downturn," he says. "It draws attention when there is a new face to it."

Food stamps may already affect nutrition in one way. According to a recent study by Professor Parke Wilde, Ph.D., Lisa Troy, Ph.D., NOO, NO7, and Professor Beatrice Rogers, Ph.D., published in the *American Journal of Agricultural Economics*, participants in SNAP buy more groceries and eat out less often than non-participants with the same income level.

"One explanation may be that SNAP participants acknowledge the program's purpose and feel obligated to increase their food spending substantially, even if their benefit level is small," Wilde says. "Even beyond their program benefits, these participants tend to spend their own income on store-bought food."

beans," and there is a significant difference in cost over prepared beans, she says. "But people have to have handled a dried bean in their lives."

"There really is an opportunity to re-educate people about how to cook, and how to shop quickly and make it taste good," she says, picturing a show on the Food Network that focuses less on flash and more on the basics.

But with job losses mounting and investments tanking, will people even have the emotional and mental energy to cook? Or will we seek solace in chocolate and fried food? Some of the only U.S. companies to do

consistently well during the Great Depression were the producers of tobacco, candy, and fats and oils.

"It's not just about comfort food," Wilde says. "A lot of food choices are trade-offs between pleasure now and quality of life in our 70s, and you might make those decisions differently if you are basically hopeless about the future."

There is some indication that people are

thinking ahead, at least by a day or two. A survey by Information Resources Inc. found that 76 percent of people planned to make their purchase decisions at home or on the way to the store, rather than in the store. In other words, they are using shopping lists, the antidote to nutritionally toxic impulse buys.

Some researchers have proposed that the value of time changes during a recession, in some ways for the better. Because time is more lucrative during an up economy, people work harder, suffer more stress and pay less attention to their health. This



translates to diet. Who hasn't planned on cooking grilled chicken for dinner, but opted to pick up a hamburger on the way home when they were hungry and running late? Lisa Mancino and Jean Kinsey, of the Economic Research Service, write that "because of time constraints and the desire for convenience—situational factors—[consumers] sacrifice good intentions for immediate gratification."

PASS THE GENERIC-O'S

The U.S. obesity rate, which had been rising for a quarter-century, recently appeared to hit a plateau. As Professor James Tillotson, Ph.D., puts it, even if things go horribly wrong, "How could we eat any more than we do right now?"

Tillotson, who studies the influence of social, technological, economic and political factors on food policy, has been watching where shoppers are spending their food dollars. It's true that Wal-Mart has reported stronger than usual sales of peanut butter and spaghetti since the recession began, but "I don't think people will change much exactly what they are eating," Tillotson says. "The diet is pretty entrenched."

Restaurants may be suffering, particularly white-tablecloth and casual-dining establishments, but supermarkets are doing well, especially Wal-Mart. "The supermarkets might come out of this smelling like a rose," he says, as they will pick up business from consumers eating out less. In particular, he expects consumers will turn to more store-brand, private-label products, leaving more expensive national brands on the shelves. Over the last year, for example, sales of brand-name cookies and crackers have fallen.

"The problem is, brands are trying to hold onto their profit margins, which are high by historic levels," he says, adding that he is stunned that people are expected to pay \$4 or more for a box of cereal. But, he says, consumers are catching on that store brands, which cost an average of 30 percent less than national brands, have improved in quality and are often made by the same companies selling national brands. Tillotson points to England, where 60 to 70 percent of

the top-selling grocery store products wear major supermarket labels. "The American chains will be pushing this new opportunity," he says. Wal-Mart, for example, will have more than 800 of its own store-brand products on the shelves within the next few months.

Wilde agrees that consumers' first cost-cutting measures won't necessarily affect the nutritional value of their diet.

"People are going to buy less food that's marketed as health food," he says, drawing a distinction between value-added foods that broadcast their "right-carb profile" and those that are quietly nutritious. "So you'll get cereals marketed as health food that are

nutrition.tufts.edu), said it is too early to know the effect the recession will have on sales of its farm shares, but so far, signups for the program, World PEAS CSA, are on par with last year. "A lot of the CSAs I know have huge waiting lists from prior years," she says. "If returning customers drop out, there are probably enough people on their waiting lists to fill the gaps."

Aside from the benefits to the environment, buying a farm share, which costs \$550 a season, is still a good deal economically, she says.

"Most farmers say their customers are getting 25 percent more in the box than the customer is actually paying for," Hashley

"It isn't really labor-intensive to cook dried beans. But people have to have handled a dried bean in their lives."

—JEANNE GOLDBERG

more expensive than oatmeal you cook in your kitchen. I don't even know if they are healthier."

As for organic products, supermarkets' private-label organics will gain popularity over manufacturer brands, according to the research firm Organic Monitor.

"The recession is going to shift demand away from organic, but that doesn't necessarily mean that much less organic is going to be produced and consumed," Wilde predicts. Until recently, demand for organic ingredients was outpacing the supply, which drove prices up. Supply should come more in line with demand, which should bring prices down, Wilde explains.

"It can certainly be good for organic consumers," Wilde says.

The change in supply and demand may also protect the local foods movement and community-supported agriculture (CSA) farms. Jennifer Hashley, director of the New Entry Sustainable Farming Project (nesfp.



says. "It's a risk-sharing agreement; if it's a banner weather year, you may get 10 times the value of tomatoes." She points out that because the produce is often picked fresh that morning or the day before, it has a much longer shelf life, which can mean less goes to waste.

She thinks the recession has increased the attendance in the project's farm business planning class, which recently graduated 30 students. "Some of the folks in the class are currently unemployed and looking to do something until they can find another job," she says.

In New England, the decline in manufacturing jobs may help local farmers who typically struggle with finding people to work on their farms. "I'm predicting that this year, people who may never have otherwise looked at farm employment as an alternative may do so," she says.



THE PENNY-PINCHER'S GUIDE TO GROCERIES

Allison Parker, N08, a nutritionist for Wegmans supermarkets, suggests:

- “Shop the perimeter” may be the mantra for avoiding processed foods, but the center of the store may warrant a closer look, given rising food costs. You’ll find plenty of healthy staples like brown rice, whole-wheat pasta and a variety of beans.
- Plan “Meatless Mondays” of vegetarian chili or rice and beans.
- According to the USDA, the average cost of a serving of fruits or vegetables is 25 cents. Compare that to a single-serving bag of potato chips, which rings in at 69 cents, or an 80-cent candy bar.
- Make your own snack mixes and “100-calorie packs.” Create trail mix using whole-grain cereal, nuts and dried fruit. Portion out crackers, popcorn and pretzels into small snack bags.

Jennifer Shea, N05, M05, wellbeing program manager for Shaw’s supermarkets, recommends:

- Sign up for Internet coupons at supermarket websites and get them emailed to you weekly.
- Wash and cut produce yourself—it’s cheaper than the pre-prepped stuff.
- Instead of pre-seasoned pasta or rice mixes, buy whole-wheat pasta and brown rice in bulk and add your own flavorings.
- Buy fruits and veggies in season. Get extra to wash and freeze for future use. Also, stock up on frozen veggies and fruit, which are as nutritious as fresh.
- Don’t fear the canned goods. The taste of canned veggies has improved dramatically over the years. Buy low-sodium varieties and give them a rinse before using to reduce sodium content by as much as 40 percent. Also, canned tuna and salmon are inexpensive sources of protein and great sources of heart-healthy omega-3 fatty acids (EPA and DHA).

TAKE-OUT VS. EATING IN

Pizza night for a family of four

PIZZA JOINT	Price/item
Large 2-topping Pizza	\$14.17
Garden Salad	\$4.99
Tax	\$1.53
Tip	\$3.10
Total	\$23.79

SUPERMARKET	Price/item
Whole-Wheat Dough	\$2.29
Sauce	\$0.99
Cheese	\$2.49
Pepper	\$1.99
Mushrooms	\$2.00
Salad	\$2.99
Dressing	\$1.79
Total	\$14.54

Savings \$9.25

BETWEEN A TWINKIE AND A HARD PLACE

Wilde says he is painfully aware that the economy will bring serious hardship to many people. At the same time, he can’t help but think that many Americans could stand to spend and waste less.

“I’m worried about the future and about depression, but I think we should have perspective about what our spending level is now,” he says. “I tend to not be satisfied with the food system that our prosperity has brought us. And it just focuses my attention on those things where more money hasn’t

brought us more health.

“I’m wrestling with this because I’m acutely aware of how this seems unsympathetic to people who are facing hard times. Nobody would recommend recession and depression as a good way of learning about good environmental resource use.”

Goldberg says she is the last to criticize those families who will turn to inexpensive processed foods to get them through tough times. “Kids like them; they fill them up; you can go to Costco and buy them in giant quantities at cheap prices,” she says. “So there is a pull and tug between trying

to preserve sound nutrition and at the same time meet the needs of the family. It’s tough. I wouldn’t for a moment say that having less money for the general population is going to improve the quality of their diets.”

She adds: “To state it positively, I think it’s a challenge that people will meet in different ways, by saying everything from ‘I give up’ to ‘I’m going to use this as an opportunity to pull back and stock my shelves with what we really need to have.’” **TN**

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Picking a Food Fight

Author Michael Pollan says we focus too much on nutrients

and not enough on food BY MARJORIE HOWARD

"WE HAVE A NATIONAL EATING DISORDER," AUTHOR MICHAEL Pollan told an overflow crowd at Tufts as the 10th speaker in the Richard E. Snyder President's Lecture Series. "We hunger for advice to know how to perform this human activity."

The author of *In Defense of Food: An Eater's Manifesto* and *The Omnivore's Dilemma: A Natural History of Four Meals* said that instead of enjoying food, we focus on individual nutrients that are often dubbed good or evil, sending us scurrying off in pursuit of one and avoidance of the other.

He described what he called "the American paradox," namely that we are obsessed with nutrition, yet we have the worst health in the world, with high rates of heart disease and diabetes. "We have created the one diet that reliably makes us sick," he said. "What an achievement for a civilization."

He blamed what he calls "nutritionism" for this problem. While it's important to understand more about the chemistry of food, he said, the public doesn't necessarily need to know about every scientific finding. He issued this comparison: "Nutritional science is fascinating," he said, "but sort of where surgery was in 1650. It's interesting and promising, but are you ready to get on the table?"

Underlying nutritionism is the premise that because nutrients are invisible, only experts can explain the hidden reality of food to us. "It's a little like religion," Pollan said. "You need a priesthood, because since you can't have your own relationship with this divinity, you need some intermediary. And that is the priesthood of nutritionists and journalists and food experts of all kinds."

Another nutritionism tenet is that the primary function of eating is to advance our health. Instead, he added, it's important to remember there are other reasons people eat: for pleasure, a sense of community, a sense of identity and as ritual.

Nutritionism divides the world into good and evil, leaving us to navigate between them, Pollan said. "There is always some satanic nutrient we are trying to drive

from the food supply, such as trans fat or sodium. At the same time, there is always a blessed nutrient that if we ate enough of, we would live forever, such as omega-3 fatty acids or fiber."

Food manufacturers jump on the bandwagon of the so-called good nutrients, fortifying food with these substances whether they belong there or not, he said, so that omega-3 fatty acids, which occur naturally in some nuts and fish, can now be found in some yogurts. He predicted that the next "evil" nutrient will be omega-6 fatty acids and that consumers would soon see packaging labeled "omega-6 free."

Nutritionism is an old idea, he said, noting that at

the turn of the last century, protein was considered evil and carbohydrates good, leading to the invention of breakfast cereals. Pollan said the low-fat campaign of the 1980s was the "crowning achievement" of nutritionism and coincided with Americans getting fatter. People avoided fat, but binged on carbohydrates. The thinking was, "as long as you avoid the evil nutrient, you can eat whatever you want," he said.

Nutritionism is a fantastic way to sell food, Pollan continued. "It favors processed foods, because you can change the formation," he said. "Right now, for example, foods are bragging they are full of sugar instead of high-fructose corn syrup."

Culture has taught people how to eat for eons, argued Pollan, who is collecting cultural rules about food.

"It turns out what is best for health is also best for agriculture and the environment, namely real food that people can cook and eat," Pollan said. "Our personal health is not a matter of good chemicals and bad chemicals but is linked to the entire food chain. Taking back control of food is the best thing we can do for our health and for our families." **TN**



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Dieting

Don't fight your food impulses,
says Professor Susan Roberts. Use them.

BY Instinct

BY JULIE FLAHERTY ILLUSTRATION BY TANYA FEDAN



DO WEIGHT-LOSS GURUS EVER AGREE ON ANYTHING? THE Atkins diet considers steak a slimming food, while the Ornish diet banishes meat. The Skinny Bitch diet disparages artificial sweeteners, while the South Beach diet allows them. Everyone seems to have his own take on taking off the pounds.

So a few years ago, Professor Susan B. Roberts, Ph.D., set out to see where the research concurs with the popular diet prescriptions. Her new book, *The Instinct Diet* (Workman), gets to the heart of what scientists really know about weight loss and puts a new spin on the idea of gut feelings.

She has come up with what she calls our five food instincts, which researchers agree on and which are borne out by cross-cultural comparisons. “When people get hungry, they want to eat. If there’s food there, you eat it. If it’s got calories, you like it more. If there is more variety, you eat more,” she says. “We keep ourselves safe by eating what we know under circumstances we know.”

Roberts’ approach is not to fight those instincts, but to use strategies to deal with them. She’s gleaned these approaches from the scientific literature and from 17 years of studying people’s metabolisms, cravings, food preferences and responses to different diets as director of the Energy Metabolism Laboratory at the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts.

“People tend to feel bad about lacking willpower, rather than accepting that natural biology is important when it comes to what we like to eat,” Roberts says.

THE SPICE OF LIFE

Take the urge for variety, which is supposed to ensure we take in a spectrum of nutrients. “Variety is an enormously underestimated component” of weight gain, she says. In one research study, for example, people who were offered three different shapes of pasta ate 14 percent more than those who were served only one shape.

But variety can also work to a dieter’s advantage. Her lab has shown that people who choose a greater range of vegetables end up doubling or tripling their vegetable consumption and reducing their calorie intake. The lesson? Limit yourself to one kind of cookie when you shop, but bring home a half-dozen different vegetables.

The desire for calorie-dense foods seems

like a given. Who doesn’t love a rich dessert? But Roberts says it is not just your taste buds that enjoy that chocolate cake. When those calories get in your bloodstream, your brain releases addictive, feel-good chemicals like

dopamine. After a while, your brain learns to “associate the rush of calories coming into the body with the tastes,” says Roberts, who is also an adjunct professor of psychiatry at Tufts Medical School.

So every time you see a chocolate cake, you desire it. She has seen it in her own lab, where people served two recipes with unfamiliar flavors eat them in equal amounts on the first day. Nine days later, the flavors they say they like are the ones associated with the calorie-dense recipe.

Roberts’ trick is to recalibrate the taste centers in our brains. “Our enjoyment of calories is relative,” she says. “We like what’s at the top end of our calorie scale. If you eat brownies with premium ice cream, and that’s the top end of your scale, low-fat salad is pretty unenticing. But if you add some oil to your salad and you serve a lower-calorie brownie with frozen yogurt, the calorie contents are more similar, so you can like the salad even though you still like the brownie.”

MIDDLE GROUND

Then there is hunger. Roberts says that studies point to four ways to keep satiated on

fewer calories: eating foods high in volume, high in fiber, high in protein or low on the glycemic index, which means they produce only small fluctuations in blood glucose.

But where other diet doctors may tout only one path to your ideal weight, Roberts suggests picking and choosing. A high-fiber breakfast of whole-grain cereal, milk and fruit is easy to prepare at home, but it’s hard to find high-fiber choices at restaurants, where it’s simple to order a high-protein meal of steak and veggies.

“One way doesn’t work for everybody,” she says. “You can tell people to eat high-protein diets, but they’ll get bored. You can tell them to eat low-glycemic-index diets, and they will find they haven’t got the patience to cook wheat berries. You can tell

Where other diet doctors may tout only one path to your ideal weight, Roberts suggests picking and choosing.

them to eat high volume, and they’ll be craving cheesecake. We have to give people options here.” To that end, *The Instinct Diet* is filled with recipes, vegetarian options, quick-fix emergency meals, a supermarket navigator and a restaurant survival guide.

Roberts points out that the feeling of hunger, which is controlled by the hypothalamus, and the feeling of reward, which is associated with the ventral striatum, both originate in the evolutionarily primitive center of the brain, where automatic functions like body temperature are controlled. That means you can decide with your prefrontal cortex whether to go into Dunkin’ Donuts for coffee, but once inside, the sight and smell of the donuts can activate responses in your unconscious brain.

This plays into the instincts of availability (if the food is right in front of you, you want it) and familiarity (if a cruller with your coffee is a morning tradition, it will be harder to give up).

“Willpower often doesn’t work because it happens in the wrong part of the brain,” says Roberts. “What we have to do is lead our lives in ways that take willpower out of the equation.” **TN**



Dean Eileen Kennedy; Judge Annette Forde; Assistant Professor Kathleen Merrigan with her children, Seamus and Fiona Selmi; and Tufts University President Lawrence S. Bacow after the swearing-in ceremony.

Number 2 at the USDA

New deputy secretary pledges to represent all types of farming

K

ATHLEEN MERRIGAN, PH.D., AN ASSISTANT PROFESSOR AT THE Friedman School and director of its Agriculture, Food and Environment Program, became deputy secretary of the U.S. Department of Agriculture on April 7. She was sworn in during a reception at the Jaharis Center on Tufts' Boston campus.

The deputy secretary of agriculture, the second-highest post at the department, oversees day-to-day operations of the USDA, including the development of a \$95 billion budget for 26 agencies representing 300 programs and more than 100,000 employees.

President Barack Obama's nomination of Merrigan for the post delighted many organic agriculture proponents. Before coming to Tufts in 2001, Merrigan spent two years as head of the Agricultural Marketing Service where she developed the USDA's organic labeling rules. As a Senate aide, she worked on the Federal Organic Foods Production Act of 1990 that defined organic farming and organic food.

Ferd Hoefner of the National Sustainable Agriculture Coalition told Reuters that "sustainable and organic farmers are excited . . . that someone who has been

associated with these issues her whole career is going to be at that level in the department." A *New York Times* article cited Merrigan's appointment as one of several signs that the federal government may be seeking to encourage a more nutritious and sustainable food supply.

At Merrigan's nomination hearing before a Senate committee on April 1, Senator Saxby Chambliss, a Georgia Republican, expressed concern over some of the articles Merrigan has written championing organic agriculture.

"In promoting your passion for organic production and sustainable agriculture, you tear down other types of agriculture with different points of view," he said.

Merrigan replied, "I've always been a provocateur; that's part of my personality." But she emphasized that as deputy secretary she would represent all kinds of farming.

"Organic is a small slice of the pie," she acknowledged, in that it represents only 2 or 3 percent of overall American agriculture. She called it an exciting enterprise that has attracted young, new farmers to a field that is losing many workers to retirement. "But there is also the important disappearing middle—those farmers out there who are not making it, and I want to help and find ways to encourage them, and some of that is going to be through important conservation programs."

She added, "Twenty percent of producers are providing 80 percent of the food; I understand that reality."

Merrigan told the Senate committee that as manager of the \$1.2 billion Agricultural Marketing Service she helped with milk marketing orders, check-off programs and the procurement of commodities for domestic food programs, including National School Lunch.

Senator Tom Harkin, the Iowa Democrat who chairs the Senate Committee on Agriculture, Nutrition & Forestry, expressed confidence in Merrigan's ability to deliver.

"She has a strong and diverse background working on many issues in food and agriculture, and [working] to improve opportunities for people in agriculture and in rural communities," he said.

American agriculture, Merrigan told the committee, must remain competitive. "To this end, creative and supportive marketing programs and science-based regulations are essential," she said. "Investments in science and research must be made, but these investments will yield greater results if they are targeted, monitored and evaluated. I also believe that a strong farm safety net must be maintained to uphold and honor those men and women who persevere, despite the odds, and work hard every day to deliver wholesome safe food to people around the world."

MANY MOUTHS TO FEED

Keep the policy focus on world food security, says a former secretary of agriculture by Jacqueline Mitchell

With a new administration in Washington, Dan Glickman hopes one topic is near the top of the president's priority list: the strategic importance of food and agriculture policies. The issue might not grab headlines like the economy, health care, terrorism or education, "but food and agriculture affect all of these other issues very directly," he said.

Glickman, who was U.S. secretary of agriculture from 1995 to 2001, gave the keynote address at the third annual Friedman School Symposium, a meeting for national and international experts to discuss subjects affecting nutrition policy and the food industry. "The issues of food security, food scarcity, nutrition, global economic development and food safety are going to be paramount to our national security focus for the next decade," he said.

"The world of food economics is changing rapidly," Glickman said, noting that the recent spike in food prices is a mere harbinger of things to come. Given climate change, changing patterns of land use, energy costs and increasing standards of living for millions of people in India and China, the U.S. should plan for "slight food scarcity for the rest of the 21st century," he said. "We have to move away from almost a century of food policy predicated on perpetual surplus."

America's surplus grain supply is no longer enough to feed the world's hungry, Glickman said, arguing that the United States should engineer a policy shift from sending food aid to fostering development assistance in the form of new farming technologies. The Green

Revolution, led by U.S. researchers, allowed poor farmers to wring more food out of each acre of land. But since the end of the Cold War, budget cuts have devastated agricultural development research and aid, said Glickman, who was a U.S. congressman from Kansas for 18 years prior to his appointment as secretary of agriculture.

"The political stability of the developing world relates to food security," said Glickman. "We have to invest as a nation in these priorities."

Glickman also argued that the Department of Agriculture needs revamping. The place to begin, he said, is by attracting the talented

staff, not just people with farm commodities backgrounds. "We are now seeing the need to attract high-quality people back into government," he said. "Issues of food and agriculture will have as much of an impact on the future of the world as anything else our government will be doing."

Restoring America's leadership in these areas, he said, will require "more science and better science. Your job is to get that information out," he told more than 300 nutrition scientists and professionals from the United States and Europe who attended the Friedman Symposium. Experts from Tufts, UC Berkeley, the National Institutes of Health, Massachusetts General Hospital and MIT weighed in on topics such as food scarcity and economics, labeling practices and vitamin supplementation during the three-day event last fall.

The next Friedman School Symposium will be September 11-12. Visit www.friedmansymposium.com.



Dan Glickman

Jerry Sternin's Positive Legacy

Friends remember the wisdom and humor of a teacher and mentor

PETER VON MERTENS THOUGHT he knew everything there was to know about hiking. Until, that is, he went to Nepal with the Peace Corps in 1966 and met Jerry Sternin.

Rather than trudging, Sternin told him, “lift up your head, observe everything around, find some interesting people, engage them in conversation, sprinkle lavishly with humor and enthusiasm and eat whenever possible.” Von Mertens described the technique at a recent memorial celebration of Sternin’s life, saying “Jerry could make those steep hills disappear.”

Opening minds to new ways of doing things was a lifelong pursuit for Sternin, a development practitioner, teacher and mentor who died in December 2008 at the age of 70. He was perhaps best known at the Friedman School for creating the Positive Deviance Initiative with his wife and collaborator, Monique, and for the related

course they taught. He also leaves a son, Sam, who works for the Bill & Melinda Gates Foundation.

Sternin was born in Brooklyn and earned a master’s degree in Asian studies from Harvard University, where he also served as an assistant dean and adviser to students in the business school.

He dedicated eight years to the Peace

Corps, as a volunteer in the Philippines, an associate director in Nepal and as a director in Rwanda and Mauritania. One of the volunteers he worked with in Mauritania was Randa Wilkinson, N85. At one point, Sternin, realizing her morale was low, drove two days from the capital to the remote village where she was stationed, surprising her with a cooler of foie gras, baguette, cheese, chocolate and a pitcher of frozen cocktails.

“As we sipped our first daiquiri, he modestly, in his no-big-deal Jerry way, admitted leaving Nouakchott at 3 a.m. and driving straight through so that this feast would be served at the right temperature,” she recalled. “He came out and listened, saw my world. And he didn’t judge, offered no advice ... he nurtured my soul with acceptance and affirmation.”

He worked for 16 years with Save the Children, in Bangladesh, Egypt, the Philippines, Myanmar and Vietnam. But his

experience with large non-governmental organizations with large staffs made him realize that many times, NGOs create dependency, Monique Sternin said.

“Unless you interact with the population, you can actually create more needs that make them less independent,” his wife said. “He really saw that as a handicap to development.”

In the 1990s, the Sternins read about a new approach to community development in a book by Marian Zeitlin, a former nutrition professor at Tufts and now a visiting professor at



Jerry Sternin spent nearly half his life working outside the United States, in places such as Vietnam.

the Friedman School. It called for finding small, successful, but “deviant” practices that are already working in a community and amplifying them. The Sternins thought their assignment in Vietnam with Save the Children would be a good venue to put Positive Deviance into practice. But the Vietnamese government was a little suspect of the Sternins’ plans, recalled Mike Yeldham, who was then working in Hanoi.

“You were not bringing food; you were not bringing money, and yet you were supposed to be helping malnourished children,” he said. “At the end of six years, the result was a nationwide project, ever expanding, a great success and an award from the government of Vietnam.”

Their Positive Deviance model for addressing child malnutrition has been replicated in 41 countries. They have championed its use for tackling the most complex issues, such as HIV/AIDS, female genital cutting and girl trafficking. In the United States, they have shown how the methods can be applied to everything from business practices to health care.

Jon Lloyd asked Jerry Sternin to introduce Positive Deviance at a workshop for hospital employees in Pittsburgh, where he got a glimpse of Sternin’s sense of humor.

“During the workshop, Jerry referenced his work with a community of transvestite commercial sex workers in Indonesia trying to avoid the problem of sexually transmitted diseases,” Lloyd said. “He confided that he had thought that they were the most exotic people he had ever worked with, until that day when he began working with health-care people.”

His friend Mickey Levitan said it was well known that Sternin “knew every word to every song of every musical ever written.” He even wrote a musical of his own, called *River Swift*, which is set in China.

For all the efforts Jerry Sternin made to fight malnutrition, he knew that food was about more than sustenance. A talented cook, he founded Chautara, a four-star restaurant in Pembroke, Mass.

Through it all, he was fun, said his friend Lois Raimondo. “I always told Jerry I wanted to learn how to cook,” she said. “But I really didn’t want to learn how to cook; I just wanted to hang out with Jerry and eat his food.”



HNRCA Director Simin Nikbin Meydani (right) with Professor Emeritus Robert Russell (left), who stepped down as director in July 2008, and his predecessor, University Professor Irwin Rosenberg

MEYDANI HEADS NUTRITION RESEARCH CENTER

Simin Nikbin Meydani, D.V.M., Ph.D., has been named director of the Jean Mayer USDA Human Nutrition Research Center on Aging at Tufts. She had served as associate director of the HNRCA for the last four years.

“I look forward to working with Dr. Meydani in this expanded leadership role,” said Jamshed Bharucha, provost and senior vice president. “She is a model colleague, maintaining an impressive research program while excelling as an academic leader.”

Meydani came to Tufts in 1984, and began researching the effects of nutrients on aging, the immune system response and infection at the HNRCA and teaching at the Friedman School.

As a senior scientist and director of the Nutritional Immunology Laboratory at the HNRCA, Meydani has received numerous grants from the U.S. Department of Agriculture and the National Institutes of Health. She has repeatedly been recognized by her peers, serving as president of the American Aging Association from 2005 to 2006 and receiving distinction awards from the American Society of Nutrition, the American College of Nutrition and the American Aging Association, as well as international organizations.

“Over the last 30 years, research conducted by USDA HNRCA scientists has helped shape nutrition policy in the United States and abroad,” Meydani said. “I am very excited to have the opportunity to work closely with my colleagues to ensure continuation of high-quality research with significant impact for the health of older Americans and those around the world.”

Meydani will continue to serve as a professor at the Friedman School and the Sackler School of Graduate Biomedical Sciences at Tufts. She holds a doctor of veterinary medicine from Tehran University and a Ph.D. in nutrition from Iowa State University.



Food Smart

Carbs, proteins and fats affect the brain in different ways
by Helene Ragovin

IF YOU'RE READING THIS STORY AFTER YOU'VE MADE A MID-AFTERNOON trip to the vending machine for a candy bar, or grabbed a cheese stick from the fridge for your morning snack, you may be feeling happily sated. But what you ate may affect how well you remember this article after you put the magazine down.

Researchers in the psychology department at Tufts' School of Arts and Sciences have been investigating the connections between nutrition and cognition for several years. Their findings show that carbohydrates, proteins and fats can affect mental functioning in different ways, depending on how and when they are eaten.

But, the researchers say, there's no need for most Americans to dramatically fine-tune their nutrient intake in the quest for mental prowess.

"It's important not to obsess about what you're eating," says Kristen D'Anci, Ph.D., G96, a research associate who works with professors Robin Kanarek, Ph.D., and Holly Taylor, Ph.D. "What we're seeing are subtle changes in cognition. It's not the kind of thing that's going to prevent someone from winning a Nobel Prize."

"It's also not what you eat at each meal; it's what you eat over the course of

a day, a week or a year that contributes to brain structure and brain health," D'Anci emphasizes.

They have examined, among other things, the effects of different breakfasts on the cognitive performance of 9- to 11-year-old children; the effects of sweet snacks on learning and attention in young boys and college students; and the effects of low-carbohydrate weight-loss regimes on the cognitive behavior of dieters.

"The underlying idea behind the research is that the brain is fueled by glucose," Taylor says. During digestion, carbohydrate is broken down into glucose, which enters the bloodstream to be used by the brain. "We're looking at what people consume, and how the brain's uptake of glucose affects cognition," she says.

In the breakfast study, published in 2005 in *Psychology & Behavior* and funded by Quaker Oats, elementary school children were fed either instant oatmeal, cold cereal or no breakfast at all. While similar in calories, the two breakfasts had different amounts of carbohydrate, protein, fat and fiber, which contribute to their glycemic scores. Oatmeal had a lower glycemic score than the cold cereal used in the study, which means that its carbohydrates are digested and absorbed into the bloodstream more slowly.

As expected, the children who ate breakfast performed significantly better on a series of cognitive tests than those who had no breakfast at all. But among the breakfast-eaters, the children who ate oatmeal performed better on spatial and short-term memory tests administered an hour later. Taylor, Kanarek and their co-authors theorized that "due to compositional differences in protein and fiber content, glycemic scores and rate of digestion, oatmeal may provide a slower and more sustained energy source, and consequently result in cognitive enhancement compared to low-fiber, high-glycemic, ready-to-eat cereal."

In two separate studies looking at the effect of snacks on learning, memory and attention, Kanarek, Taylor and their colleagues offered test subjects either sugar-sweetened candy or low-calorie artificially sweetened snacks at different times of the day. In the first study, published in

Psychology and Behavior in 2001, school-age boys received the snacks after an overnight fast and were then tested on a variety of tasks involving memory and attention.

The children who ate the sugary snack were better able to stay on task for an extended period of time. In the second study, published in the same journal six years later, boys and college undergraduates were given their snacks in the afternoon; the high-sugar snack generally improved performance on tasks involving memory, but had a mixed effect on attention. Funding for both studies came in part from the Mars candy company.

The researchers hypothesize that the different results may be a consequence of whether the snack is consumed after an overnight fast or shortly after a meal.

Their most recent work—published in March in the journal *Appetite*—touched on America's obsession with weight loss, and garnered attention for its conclusion that strict low-carbohydrate diets led to some degree of memory impairment and self-reported confusion.

For three weeks, two groups of women followed two different weight-loss plans, either a diet that prohibited or strictly limited carbohydrates, or a balanced, reduced-calorie diet recommended by the American Dietetic Association. After the first week of the low-carb diet, during which the women ate no carbohydrates whatsoever, they performed significantly worse on memory-related tasks.

"What we saw was very clear and specific on memory performance," D'Anci says. "When we restricted the carbohydrates, the women were less able to remember locations on a map, which is a visual and spatial task, either immediately or a week later." The low-carb dieters' short-term memory was also impaired, D'Anci said.

However, "as soon as we re-introduced even a small amount of carbohydrate, their memory functioning returned to the original level," Taylor said. The carbs they added were in the form of fruits, vegetables and whole grains.

In addition, the low-carb group was able to pay closer attention during a long-term repetitive task.

It's not entirely surprising that the

no-carbohydrate diet had a different effect on memory than it did on attention. "From brain-imaging studies, we know that the processing of memory and attention take place in different parts of the brain," Taylor says.

The long-term impact of the work, Kanarek says, lies not in providing diet tips to college students seeking a leg up on their exams, or to ambitious executives trying to score the best deal at the negotiating table.

"I think in this country, most people have enough to eat—while a given snack or lunch may have a small effect on behavior, it's not a major effect," Kanarek says.

But the research could apply to children and others in developing nations where food scarcity is an issue, or to nutritionally vulnerable groups in developed nations, such as the elderly, dieters or those with eating disorders.

THE ROAD TO KOREA

Dean Stephen Bosworth named special representative for North Korea by Taylor McNeil

FLETCHER SCHOOL DEAN STEPHEN BOSWORTH HAS BEEN NAMED TO THE newly created position of special representative for North Korea policy by Secretary of State Hillary Clinton.

As the new special envoy, Bosworth is charged with addressing "the full range of concerns with respect to North Korea, including its nuclear ambitions and its proliferation of sensitive weapons technology, as well as its human rights and humanitarian problems," Clinton said when she introduced him to the press corps in Washington, D.C., on February 26.

Bosworth, who will report to President Barack Obama and Clinton, says that formal goals haven't been set yet, but that he hopes to "re-establish dialogue with the North Koreans to ensure that all the countries of the region are operating from a base of common understanding and consensus." He adds that "it's particularly important for the U.S. that we maintain close

Continued on page 30

Stephen Bosworth is introduced by Secretary of State Hillary Clinton.



Continued from page 29

agreement with South Korea and Japan, our two allies in the region.” He says he will be coordinating very closely with China as well.

Bosworth, who was U.S. ambassador to the Republic of Korea from 1997 to 2000, will remain dean of the Fletcher School. “My commitment is for about a fourth to a third of my time with this new position,” he says, noting that he will be in Washington for about a week every month, and will travel to Asia every six weeks or two months.

“It’s going to be a good deal of work, because I’ll continue doing what I’m doing here at the Fletcher School—we’ve got a lot going on,” says Bosworth, who has been dean since February 2001.

“I’ve always considered that public service is a privilege, and I’m thankful for the president and secretary giving me the opportunity to do it again,” he says.

Bosworth joins two other special representatives

“He will work closely with our allies and partners to convince North Korea to become a constructive part of the international community.”

—HILLARY CLINTON ON STEPHEN BOSWORTH

newly appointed by Clinton, George Mitchell for the Middle East and Richard Holbrook for Afghanistan and Pakistan. Holbrook received an honorary degree from Tufts at commencement ceremonies in 1997.

His appointment came quickly, Bosworth says. When he returned on February 8 from a private trip to Pyongyang with a group of academics and former government officials for meetings at the foreign ministry, there was a message from Clinton. Less than three weeks later, he was in Washington, meeting with Obama and Clinton, his appointment having been finalized.

Before he could accept the position, though, he spoke with President Lawrence S. Bacow and others at the university. “They’ve been very supportive and agreed I could do this,” Bosworth says.

“We are proud that Secretary Clinton has tapped Dean Bosworth for this delicate and important assignment,” says Bacow. “His selection speaks volumes about the respect he commands on the world stage generally and in Korea specifically. I have promised Steve that we will do whatever we can to support his mission.”

Bosworth says he might be calling on others at the Fletcher School to provide expertise, such as those in the Program in International Negotiation and Conflict

Resolution. “Those people have not been dealing directly with North Korea, but there are certain basic principles that I think are useful,” he says.

He also thinks that students might benefit from his work. “I would hope to use this, depending on time availability, as an opportunity to give Fletcher students some insight into the process—how these things work,” Bosworth says. “Obviously, I can’t go into the substance, but I don’t see any reason why I can’t talk to [students] about how the U.S. government approaches a problem like this.”

THE KOREAN CONNECTION

A career diplomat, Bosworth was ambassador to Tunisia from 1979 to 1981 and to the Philippines from 1984 to 1987. After holding a number of State Department posts, he was named executive director of the Korean Peninsula Energy Development Organization in 1995.

“This was the international organization that was set up under the U.S.–North Korean-agreed framework in 1994,” Bosworth says, “and we were implementing that agreement, including beginning to construct two 1,000-megawatt light water nuclear reactors in North Korea, which was the quid for the quo of their halting and eventually dismantling their nuclear weapons program.”

The 1994 agreement fell apart in 2002, “and the North Koreans again started producing plutonium, and now have produced a good deal of that,” Bosworth points out.

As part of his portfolio, Bosworth will be involved in the so-called Six-Party Talks, between North Korea, South Korea, the United States, China, Japan and Russia, though the day-to-day negotiator for the United States will be Ambassador Sung Kim. “I’m hopeful that the talks will resume,” he says. “The extent of their fruition will depend on the policies and events. [The talks] have produced some results already, and it’s a question of building on those.”

One of the key players in the region is China. Asked how much influence the Chinese government has on the rulers in Pyongyang, Bosworth says it’s likely “they probably have a little more than they admit to, and somewhat less than we think.”

The trip he took to North Korea in early February seems to have been rather prescient, and maybe those connections he made will be helpful. “One would think that perhaps the fact that I’m not totally unfamiliar to them will help,” he says, “but I think you have to be very cautious about estimating the value of this kind of relationship in North Korea. It’s a very tightly controlled and highly calculated government with the same sort of view toward its policies.”

Education Lifeline

Fund helps students keep their studies on track

A

S THE FORMER DIRECTOR OF ADMISSIONS AT THE Friedman School, Elizabeth Cochary Gross, N82, N88, now a Friedman School overseer, understands the plight of an accepted student who is forced to defer admission for one or more years because of insufficient funds. She knows that these students may never end up coming to the Friedman School.

She has come up with a creative way to help. She and her husband, Phillip, have given \$200,000 to establish the Friedman School Deferral Recovery Fund to assist admitted students who show they need a little extra financial help if they want to come to Tufts.

The idea for the fund was developed last spring as the economic future became less clear and education loans less available. The fund gives the Friedman School flexibility to increase financial aid awards to admitted students who otherwise would have to defer enrollment due to unforeseen financial challenges. The fund will be available for two years on a case-by-case basis. This year the fund made it possible for several students to attend, including the top-ranked candidates in the Master's in Humanitarian Assistance and Nutritional Epidemiology programs.

"I remember when I was director of admissions, some students would call asking to defer their admission because they didn't have enough money," Cochary Gross says. "Sometimes it was only a couple of thousand dollars. And when a student defers, you're less likely to get them" to enroll even after the deferment, she says. "I thought it would be great to have a pool of money where an admissions person could figure out how much it would take to have a student stay."



She has longstanding ties to the Friedman School as founder of its alumni association, a former researcher and current adjunct faculty member. "The school matters to me," she says. "I've spent so much of my life here. I really care about the students, love hearing their stories and want them to succeed."

As the school's capital campaign vice chair, Cochary Gross says she hopes "to be able to help other donors come up with creative ideas for giving. It is enormously satisfying as a donor to fill in a gap that wouldn't otherwise be addressed."



OPEN HOUSE

Liz Cochary Gross, N82, N88, hosted an event at her home in January for a group of Friedman School alumni and friends. Dean Eileen Kennedy shared her thoughts on the future of nutrition and ways that the Friedman School is spearheading efforts to improve the nutritional well-being of people worldwide through education and research. Among the alumni who attended were, back row from left: Greg Auclair, N88; Katya Tsaoun, N99; Tessa Cooper, N83; Michael Zackin, N82, N86; Hugh Joseph, N84, N94; Tom Hughes, N87, A10P; Abby Usen, N03; Stephen Krasinski, N88; front row from left: Cochary Gross; Sai Krupa Das, N02, president of the Friedman School Alumni Association; Jennifer Sackeck Ward, N01; and Ginny Chomitz, N85, N92.



“It’s going to take a lot of hard work to heal my country.”

Your Friedman School annual fund gift supports programs like the Feinstein Center and deserving students like Teddy Atim.

Please make your annual gift to the Friedman School today using the envelope in this issue or online at **tufts.edu/givenow**.

Teddy Atim, N08, knows firsthand the complexities—and the horrors—of humanitarian crisis. Having grown up amid violent civil war in northern Uganda, she is determined to help her nation along the road to peace.

Critical to her work are the skills she gained in the master’s in humanitarian assistance program at the Feinstein International Center. A part of the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy, the Feinstein Center trains researchers and professionals like Atim in needs assessment, aid provision, and conflict resolution. Graduates work all over the world, having a real, immediate impact on the victims of war, famine, and natural disaster.

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You Spoke, We Listened



IN THE SUMMER OF 2008, THE ALUMNI ASSOCIATION Executive Council sent out a survey to all alumni to evaluate our progress in assisting members of the community in achieving their professional and personal goals while supporting the Friedman School's mission. More than 200 alumni took the time to share their thoughts on our current programming and advancement initiatives.

We found that more than half of you have registered with the Tufts Online Community (www.alumniconnections.com/tufts), but many are unaware of the benefits that entails, such as access to the Tufts Career Advisory Network and some of the online resources of the Tisch Library.

We also saw an overwhelming request to have more access to nutrition news and information. In response, the school is posting online audio and slides from its weekly nutrition seminar series as well as nearly all sessions of the 2008 Friedman School Symposium. A new student-run initiative, the Nutrition Internet Radio Project, highlights current nutrition issues in its "Nutrition Talk" podcasts, available for download from iTunes and www.nutritioninternetradio.org. And if you go to the "Publications" link on the school website (<http://>

nutrition.tufts.edu), you'll find all the issues of the *Dean's Letter for Tufts Nutrition*, the school's electronic newsletter. We also send regular alumni email updates.

Networking was another theme that ranked high on the survey. You can now join our Friedman School alumni groups on both Facebook and LinkedIn, in addition to the networking opportunities you'll find at our Alumni Association receptions around the country. This year alone we hosted events in Chicago, San Diego, New Orleans, Washington, D.C., and of course right here in Boston.

Your Executive Council is working hard to ensure that the Friedman School Alumni Association remains active and involved. Please do your part by reaching out, staying connected, attending an event, signing up to be a career mentor or making a gift to the school. Visit alumni.nutrition.tufts.edu to learn more about the Alumni Association.

SAI KRUPA DAS, PH.D., N02
PRESIDENT, FRIEDMAN SCHOOL
ALUMNI ASSOCIATION

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N83 Susan Holman has written a new book, *God Knows There's Need: Christian Responses to Poverty* (Oxford University Press, in press). In the book, Holman, a winner of the Alumni Association Service to the Profession Award in 2006, combines her early training as a dietitian with later insights gained from her work as an historian and graduate of the Harvard Divinity School.

N84 Marguerite Evans Klein received the 2009 Alumni Association Award for Expertise and Innovation within the field.

N85 Associate Professor **Miriam Nelson**, N87, A12P, was one of 13 experts appointed to the 2010 Dietary Guidelines Advisory Committee. The committee members are prominent medical and scientific researchers from universities and scientific institutions across America.

N87 Friedman School Overseer **Tom Hughes** recently left a 20-year career at Novartis to become chief executive of Zafgen Inc. in Cambridge, Mass. Zafgen develops novel therapeutics to treat obesity, targeting adipose tissue.

Aviva Must, N92, J01P, A03P, received the 2009 Alumni Association Award for Leadership.

N92 Virginia Chomitz, N85, N92, recently published a study, "Is There a Relationship between Physical Fitness and Academic Achievement? Positive Results from Public School Children in the Northeastern United States," in the *Journal of School Health*. The study found a statistically significant relationship between fitness and academic achievement.

N96 Virginia Berman, the fundraising

program director at Equal Exchange, was a speaker at the Environmental Leadership Program's "Politics of Food" conference on September 22–24 in Raleigh, N.C. Other Friedman School-affiliated speakers included **Elanor Starmer**, N07, a researcher for Food and Water Watch; former faculty members **Molly Anderson** and **Willie Lockeretz**; and current doctoral student **Melissa Bailey**.

N97 Assistant Professor **Christina Economos** and a team of Tufts researchers received a \$2.3 million grant from the National Institutes of Health to design an obesity intervention program for immigrants in Somerville. The investigators will focus on 400 randomly selected women and children who have been in the United States for less than five years. They will work to reduce weight gain in mothers and to prevent childhood obesity. Economos will serve as principal investigator on the study.

N01 Silvina Choumenkovitch participated in her first marathon on April 20 as part of the Tufts President's Marathon Challenge Team, which runs the Boston Marathon each year to raise funds to support nutrition and medical research and fitness programs at Tufts.

Cristiana Falcone, F01, married Sir Martin Sorrell. Falcone is the director and head of Media & Entertainment Industry for the World Economic Forum USA.

Assistant Professor **Jen Sachek-Ward** and her husband Christopher celebrated the birth of their son, Austin Andrew, on September 30, 2008.

N02 Kim Dong was the co-editor of the book

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Nutrition Management of HIV and AIDS. She edited the book with former Tufts faculty member **Kristy Hendricks** and Jul L. Gerrior.

N03 Kristen Riehm Sullivan, MPH03, still lives in Atlanta but has recently changed jobs. She left the Centers for Disease Control and Prevention about a year and a half ago, and works in the corporate communications department at the American Cancer Society as a member of the medical and scientific communications team. She is also a proud mother; her son, Elliott, was born in June 2007.

N04 Sasha Chanoff is featured in Associate Professor **John Hammock's** new book, *Practical Idealists: Changing the World and Getting Paid* (Harvard University Press, 2008).

N05 *The Griffin Report* has named Shaw's wellness coach **Jennifer Shea** as one of its Women of Influence in the Food Industry for her involvement in the Shaw's Wellbeing

Program. Each year *The Griffin Report* recognizes women who have made significant contributions to the food industry. As Shaw's wellness coach, Shea provides nutrition, health and lifestyle tips in her monthly newsletter, *Wellbeing*. She also hosts programs focusing on the health and fitness of Shaw's customers and employees, including the "Fine in '09" program, which

challenges participants to revamp their lifestyles and focus on health and fitness in the new year, and the "10,000 Steps Walking Challenge," which focuses on increasing physical activity among employees.

N06 Monique Mikhail finished her work with International Development Enterprises and wrote a book on

her project in Nepal and India that was recently published (http://www.ideorg.org/news/MUS_book.php). She just started a new job with the Stockholm Environment Institute as part of its water team, and will be moving back to Boston.

N07 Jen Akula and her husband James welcomed their daughter in January of 2008.



Gabrielle Serra, N05, Jasmine Chan, N07, and Nicole Ferring, N07, were among those who took part in the Washington, D.C., Alumni & Student Networking Day on March 19.



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PAS DE FOLATE

Great choreographers draw inspiration from a diversity of subjects. Think of “Jewels” by George Balanchine or Agnes de Mille’s “Rodeo.” But few have found a muse in a topic as profound as “The role of folate in epigenetic regulation of colon carcinogenesis.”

Lara Park, a doctoral student in the Biomedical and Molecular Nutrition Program at the Friedman School and a lifelong dance enthusiast, created this moving rendition of her directed study for a contest called Dance Your Ph.D., sponsored by the American Association for the Advancement of Science. Its aim is to facilitate the collaboration between the arts and sciences. Park did just that by recruiting her ensemble from both the Friedman School community and her fellow members of the Tufts dance group Sarabande.

“I know it may sound a little out there, but certain concepts like the protein conformational changes or things like dynamic equilibrium can really translate into quite beautiful choreography,” Park said.

Even less-than-scientific minds may recognize the pairs of entwined dancers as DNA, who unwind and stretch out on the floor in preparation for transcription to mRNA. Dancers in black leotards, representing transcription factors, leap and twirl among the prostrate DNA dancers, taking their genetic blueprints in the form of blue ribbons. The process is regulated by methyl groups, who do back bends over the DNA to block the transcription dancers. When the dancer representing folate exits the stage (as in a folate-deficient diet), the methylation process is impaired, the DNA is aberrantly transcribed, and the dancers come together in a chaotic group to form a cancerous tumor.

Although Park’s was not the winning entry, it has been viewed more than 15,000 times on www.youtube.com.

—Joanie Tobin and Julie Flaherty



Look Ahead & **GIVE BACK**

“It was very important to David that I was provided for, but, moreover, that he gave back to the institutions that meant the most during his life. He had especially good feelings about Tufts.”



During his lifetime, **DAVID TARR, A57**, was an overseer at the Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy. He created a trust that provides income for his wife, **BONADAY BECK**, (pictured here) and that will ultimately benefit the Friedman School. Bonnie lives in Bath, Maine, where she enjoys kayaking, serves as a docent at the Maine Maritime Museum, and is president of the Bath Garden Club.



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PHOTO: BILL CARDONI

MOVE OVER RACHEL RAY

Katie Cavuto, N04, has reinvented herself many times over, as a registered dietitian, personal chef, entrepreneur and local television personality. Now she's one of 10 finalists vying for her own (healthy, of course) cooking show as "The Next Food Network Star." For more about the on-camera challenges she'll face—including a beach-side grill-off—turn to page 8.