co-founded by billionaire David H. Koch. These parts "sometimes work at cross purposes and sometimes work together," Skocpol explains. Thus grass-roots members may support Social Security, while the advocacy groups seek to radically restructure social programs. Skocpol says such groups associated themselves with the Tea Party to capitalize on the grass-roots enthusiasm, but promote their own agendas.

Many journalists and academics have speculated that the Tea Party emerged in response to the economic downturn, but Skocpol and Williamson conclude from their interviews that hatred of Barack Obama played a bigger role. "'Hatred' is a word they use," Skocpol notes. "He symbolizes things that they're very worried about: tax-and-spend liberal government, asking hard-working Americans to help pay for benefits for freeloaders, and immigration. We don't think it's the color of his skin so much as the fact that he's a black liberal professor with a foreign father."

She is skeptical of the parallels often drawn between the Tea Party and Occupy Wall Street protests, in part because the Occupy protestors have yet to articulate clear goals. "A lot of Americans are pretty pissed off right now," she says. "You could say that these two protests have that in common, but I don't know that they have much else." She also notes a "startling" generational difference: Occupy Wall Street is made up mostly of young adults, while the Tea Party consists overwhelmingly of older adults who tend to distrust young people, particularly those without jobs.

Skocpol and Williamson predict that the Tea Party will continue to influence elections through active participation and fundraising in Republican primaries, forcing candidates to take tough stands on immigration and against universal healthcare. Although the book's research shows that Tea Partiers often believe inaccurate information about public policy (such as specifics of the Affordable Care Act), the

authors consider the Tea Party politically sophisticated. "I think a lot of people on the liberal side have this image that grass-roots members are uneducated, irrational people," Skocpol says. "That is not correct. Tea Partiers are quite effective organizers, and they're quite pragmatic in their political choices." Their candidate may lose the general election, as Senate hopeful Christine O'Donnell did in Delaware, but O'Donnell's primary victory successfully warned moderate Republican politicians about possible challenges from the right, she points out. Tea Partiers "want to win."

∼ERIN O'DONNELL

Editor's note: Theda Skocpol is an incorporator of this magazine.

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A Diabetes Link to Meat

Red-meat consumption is already linked to higher levels of colorectal cancer and cardiovascular disease (atherosclerosis, heart disease, and stroke). Now researchers from Harvard School of Public Health (HSPH) have added an increased risk of type 2 (adult onset) diabetes to that list. The incurable illness occurs when the body's ability to control blood glucose levels by 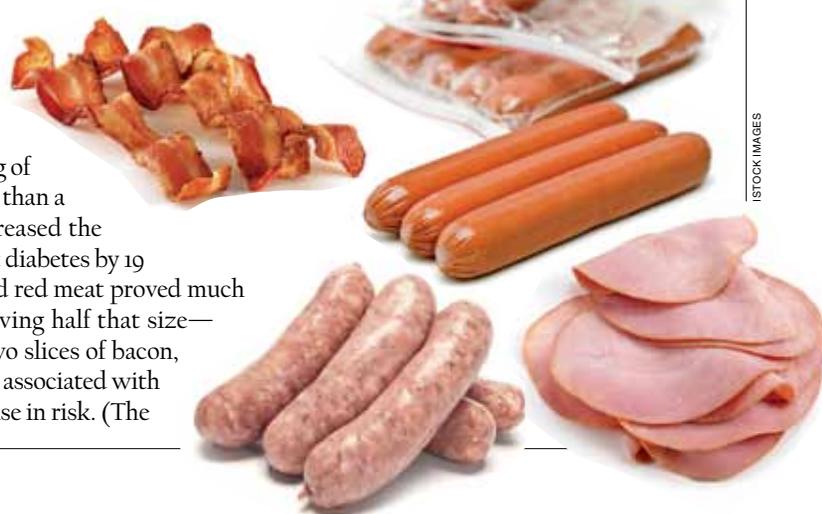means of insulin secretion becomes impaired, either because of "insulin resistance" (when insulin fails to trigger effective glucose uptake by muscle or other tissues), or because production of insulin by beta cells in the pancreas declines.

The HSPH investigators, led by professor of epidemiology Frank Hu and research fellow An Pan, analyzed data from three longitudinal studies of male and female healthcare professionals who were followed for 14 to 28 years. After adjusting for other risk factors, the researchers found that a daily serving of red meat no larger than a deck of cards increased the risk of adult-onset diabetes by 19 percent. Processed red meat proved much worse: a daily serving half that size— one hot dog, or two slices of bacon, for example—was associated with a 51 percent increase in risk. (The

average 10-year risk of getting diabetes for U.S. adults is around 10 percent.)

Why is red meat harmful? "Saturated fat, which can lead to cardiovascular disease, is really just the beginning of the story," explains Hu. Even though it is "difficult to pinpoint one compound or ingredient" as mechanistically linked to diabetes risk, three components of red meat—sodium, nitrites, and iron—are probably involved. Sodium is well
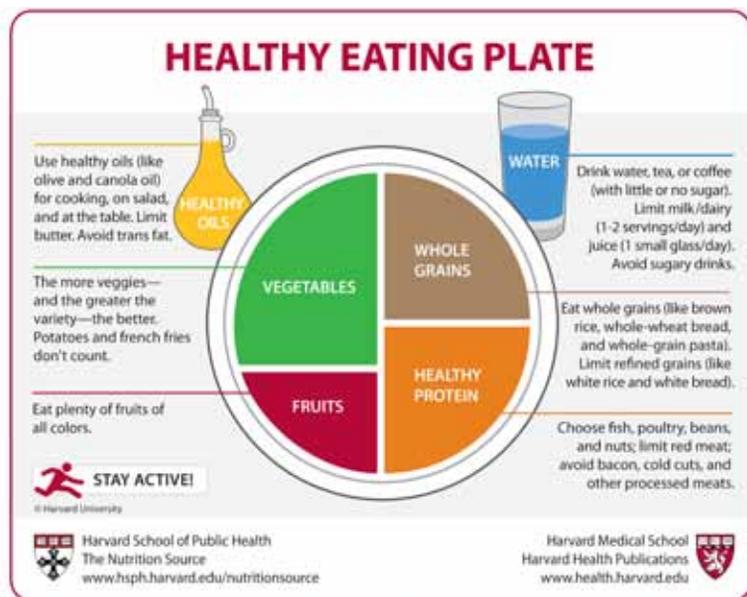

ISTOCK IMAGES

known to increase blood pressure, but it also causes insulin resistance; nitrites and nitrates have also been shown to increase insulin resistance and to impair the function of the pancreatic beta cells. Iron, although an essential mineral, can cause beta-cell damage in individuals with hereditary hemochromatosis (a disorder in which the gastrointestinal tract absorbs too much iron), and heme iron—the readily absorbable type found in meat—at high levels can lead to oxidative stress (and cell damage) and systemic, chronic inflammation in some people.

HM▶

Visit harvardmag.com/extras to read more about Harvard's "Healthy Eating Plate."

The study found that substituting other foods—such as whole grains, nuts, low-fat dairy, fish, and poultry (listed in order of effectiveness)—for meat substantially lowered diabetes risk. (Beans were not part of the study because consumption levels are so low, but Hu says that the benefits would likely be similar to consumption of other plant-based foods.) The findings of the group, which included

Stare professor of nutrition Walter Willett and Brigham professor of women's health JoAnn Manson, agree with the advice presented in a "Healthy Eating Plate" (HSPH's answer to the U.S. government's My-Plate dietary guidance), on which neither dairy products nor meat are represented visually. The Healthy Eating Plate emphasizes vegetables, fruits, whole grains, and healthy proteins such as those listed in Hu's study; recommends avoiding processed meats entirely; and shows a glass of water, rather than a glass of milk, beside the plate. "We don't need to remove red meat from the diet entirely," says Hu.

HEALTHY EATING PLATE

Use healthy oils (like olive and canola oil) for cooking, on salad, and at the table. Limit butter. Avoid trans fat.

The more veggies—and the greater the variety—the better. Potatoes and french fries don't count.

Eat plenty of fruits of all colors.

STAY ACTIVE!

WATER Drink water, tea, or coffee (with little or no sugar). Limit milk/dairy (1-2 servings/day) and juice (1 small glass/day). Avoid sugary drinks.

Eat whole grains (like brown rice, whole-wheat bread, and whole-grain pasta). Limit refined grains (like white rice and white bread).

Choose fish, poultry, beans, and nuts; limit red meat; avoid bacon, cold cuts, and other processed meats.

Harvard School of Public Health The Nutrition Source www.hsph.harvard.edu/nutritionsource

Harvard Medical School Harvard Health Publications www.health.harvard.edu

"Americans just need to move meat from the center of the plate to the side of the plate." ∼JONATHAN SHAW

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MORAL MINDED

The Biology of Right and Wrong

Philosophers have long debated the foundations of moral decision-making. "Rationalists" from Socrates to Immanuel Kant argued that people should rely on intellect when distinguishing right from wrong. "Sentimentalists" like David Hume believed the opposite: emotions such as empathy should guide moral decisions.

Now Hazel associate professor of the social sciences Joshua Greene, a philosopher, experimental psychologist, and neuroscientist, is trying to resolve this dispute by combining brain-scanning technology with classic experiments from moral psychology to provide a new look at how rationality and emotion influence moral choices. His work has led him to conclude that "emotion and reason both play critical roles in moral judgment and that their respective influences have been widely misunderstood."

Greene's "dual-process theory" of moral decision-making posits that rationality and emotion are recruited according to the circumstances, with each offering its own advantages and disadvantages. He likens the moral brain to a camera that comes with manufactured presets, such as "portrait" or "landscape," along with a manual mode that requires photographers to make adjustments on their own. Emotional responses, which are influenced by humans' biological makeup and social experiences, are like the presets: fast and efficient, but also mindless and inflexible. Rationality is like manual mode: adaptable to all kinds of unique scenarios, but time-consuming and cumbersome.

"The nice thing about the overall design of the camera is that it gives you the best of both worlds: efficiency in point-and-shoot mechanisms and flexibility in manual mode," Greene explains. "The trick is to know when to point and shoot and when to use manual mode. I think that this basic design is really the design of the human brain."

Unlike earlier philosophers, he can test his theories with neuroscientific instruments. His primary tool is functional magnetic resonance imaging (fMRI), which takes advantage of the fact that many mental functions are localized to specific areas of the brain. Deliberative reasoning, for instance, is housed in the prefrontal cortex, whereas the amygdala is considered the seat of the emotions. By monitoring blood flow to these areas, fMRI allows Greene and his colleagues to observe exactly when someone is relying on "manual mode" or "automatic settings."

For one experiment (published in *Neuron* in 2004), Greene asked his subjects how they would respond to a moral dilemma known as "the trolley problem," which involves pushing an innocent stranger in front of a speeding trolley in order to save five other strangers from being killed. Despite the utilitarian value of killing a single stranger, most respondents said that doing so would be morally wrong: the thought of pushing an innocent person to his death was too much. Yet a handful of subjects said they *would* end the stranger's life in order to rescue the others, and Greene found that this group exhibited increased activ-