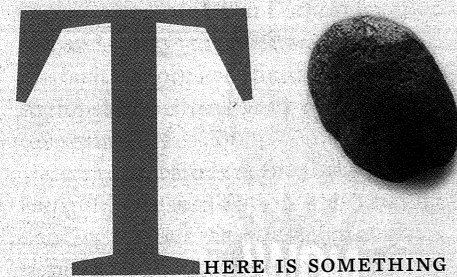


# Food Chain

[ NATURE'S BOUNTY ]

## The Roast With the Most

A new culture is brewing around the most-consumed psychoactive substance in the world. **By Laura Janecka**



**T**HERE IS SOMETHING inexplicable about our relationship with coffee. It percolates through our day from the moment we wake, enlivening our senses and galvanizing us into action. It's an affair that's been going on for over 500 years, since the first cafés set up tables in the Middle East. And it's now gathering steam as quality-obsessed kiosks add conviviality and connoisseurship to the psychoactive substance for America's chronically sleep-deprived hordes, more used to medicinally gulping down a cup on the go than stopping to savor the experience.

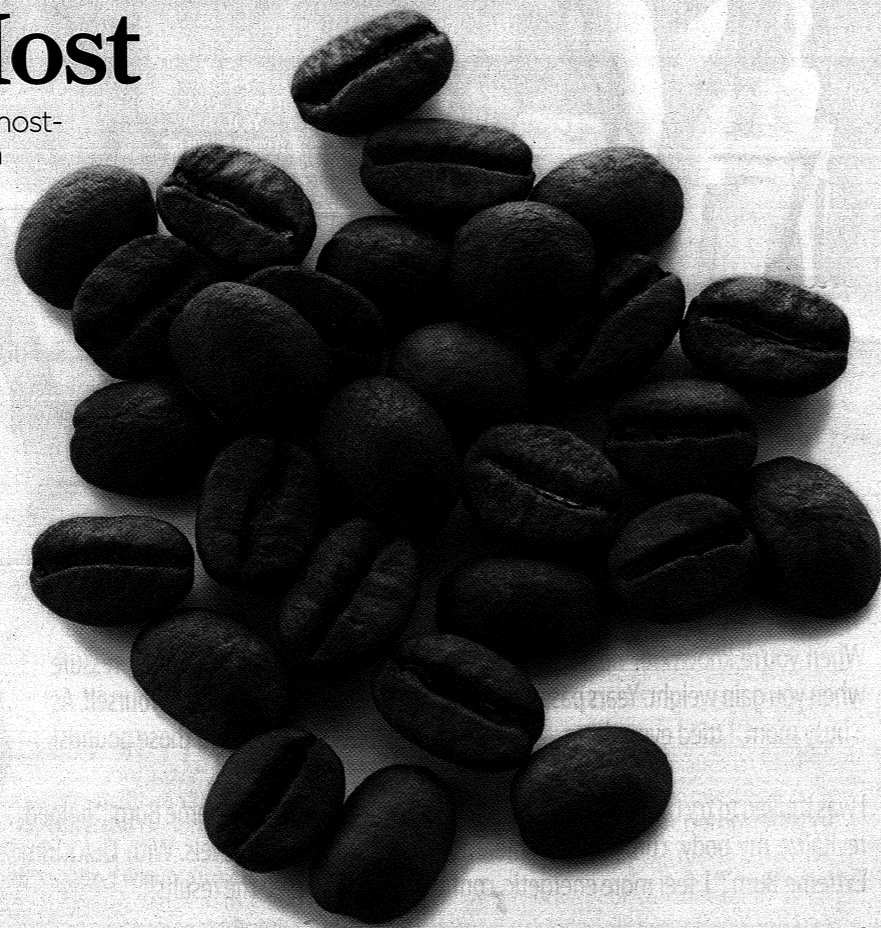
The new, more appreciative approach to the coffee bean and its handling—fresh-roasting, on-site grinding, custom-brewing, and sipping at communal tables—comes just as a whole new array of scientific findings turn coffee, especially in its darkest, most aromatic roasts, into something of a health food.

Once demonized for its stimulant

powers, coffee has also long been appreciated for its ability to improve alertness, enhance concentration, and ameliorate the effects of sleep deprivation on cognitive performance. But stopping to savor the brew and transform it into a social tool was left to the kaveh kanes of Arabia and, starting in the 17th century, Europe.

Fanning out from the West Coast, the new reverence for coffee bears a striking

resemblance to appreciation of wine and cheese. And, as with wine connoisseurship, it starts with *terroir*, the land the coffee is grown on. "Specialty" coffee purveyors—as distinguished from mass-marketed brands using beans of unspecified provenance and age—pride themselves on an artisanal approach and seek out small, sometimes family-run, farms where each hand that plucks a raw



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## Coffee is the number one source of cell-protecting antioxidants in the U.S. diet.

coffee berry could belong to a relative or community member. With their small crops, such farms can maintain a high standard of quality control—and provide a "coffee story" about the cultivation and craftsmanship that goes into the beans.

But unlike wine or cheese, java does not improve with age. Once the ripe, red, grape-size "coffee cherry" is plucked from the bush-like tree, the skin and pulp removed, and the inner bean soaked, dried, rested—yes, rested!—shipped, and roasted, decomposition begins. James Freeman, owner of San Francisco's noted Blue Bottle (named for Central Europe's first coffeehouse), prints the roast date on each bag so consumers can avoid beans gone stale by oxidation.

Grown in 50 countries, coffee is the second most traded commodity in the world, after oil. And although specialty coffee makes up only 10 percent of java consumed, it's still an \$8 billion business. Depending on the country, coffee is harvested once or twice a year, although in countries like Kenya, straddling the equator, growers harvest coffee year-round. Farms cultivate either the Arabica or Robusta species of bean. Most specialty coffee utilizes the finer Arabica, while mass-produced brands favor the slightly bitter Robusta, which is less selective about its habitat and can be harvested large-scale. It also has more caffeine.

Part science, part art, coffee roasting takes the green coffee beans and caramelizes them to varying degrees, releasing their natural oils and aroma. And then they are ground and ready for brewing. A pressurized brewing process like espresso (the basis for cappuccino and latte, as well) concentrates the flavors and extracts all the beneficial compounds in coffee. It has more caffeine per ounce than any other beverage, but it takes a *doppio*—a double shot, to

you, grazie—to supply you with as much caffeine as a cup of drip-brewed coffee.

It's no secret that caffeine boosts mental performance. It keeps attention focused and elevates mood. Studies conducted by the military show that it improves reaction time, vigilance, and logical reasoning, especially when you're tired. Neuroscientists attribute caffeine's effect on alertness to its ability to bind to adenosine receptors and to stimulate dopamine release.

But there's much more to coffee than caffeine. Researchers have found that coffee boosts a sense of well-being independent of its caffeine content, and that there are many other pharmacologically active substances in the brew.

Coffee is the number one source of cell-protecting antioxidants in the U.S. diet. Green coffee beans contain about a

thousand antioxidants; roasting adds some 300 more, most of them unique to coffee. Many of the compounds have biological effects, from minimizing inflammation to favorably affecting glucose metabolism. The health effects of antioxidants cover a broad range, as oxidation is a major factor in brain aging, cardiovascular disease, cancer, and many other diseases. Coffee compounds also deter Parkinson's disease and offset Alzheimer's disease.

In a recent study of nearly 70,000 French women—conducted by scientists at the University of Sao Paulo in Brazil—researchers probed the ability of coffee to deter diabetes. They looked at the impact of coffee on insulin metabolism in relation to the amount of coffee and the time of day it was consumed. Consumption of both regular and decaffeinated coffee with meals, and especially with lunch, was inversely related to diabetes incidence. Only black coffee had an effect, not coffee with milk.

Coffee inhibits iron absorption, and body iron stores are known to increase the risk of diabetes, but, the researchers found, the inhibition of iron absorption occurs only when coffee and the iron source are consumed at the same time, as at lunch or dinner. Having coffee at dinner does not have an additional benefit beyond that provided by sipping at lunch.

But coffee delivers at least a one-two punch against diabetes. While the polyphenol antioxidants in coffee block iron absorption, researchers found that other antioxidants in coffee—like chlorogenic acid—slow the release of glucose into the bloodstream after a meal.

So sit back, relax, chat with the other folks nearby, and down that espresso with impunity. Just skip the latte.

**LAURA JANECKA** is a PT intern.

### THE CASE AGAINST BAD COFFEE

**Here's what may** be the most counterintuitive news about coffee. It's well-known that, for some people, java can be hard on the gut, causing indigestion or heartburn. Researchers at the Technical University of Munich, who sought to pinpoint the irritant in coffee, made a surprising discovery: Indeed, caffeine, along with a couple of other compounds, can stimulate production of hydrochloric acid in the gut. But the effect is most pronounced with *weak* coffee.

Dark-roast coffee has components that actually block stomach cells from producing hydrochloric acid. The longer coffee is roasted, the more gut-friendly N-methylpyridinium (NMP) it contains. There's twice as much NMP in a darker roast than a light one.

So if you want to protect your gut, your best bet is...yup, espresso.