

Right Now

on the Schumann DVD) indicating that the immune system's malignancy-fighting killer cells significantly increase in number after people participate in a drumming circle. "Music is an enormously underutilized modality," Kogan says. "Once the hard scientific evidence comes in, there'll be an explosion of music in healing, much like what happened in the 1970s with aerobic exercise."

Music and medicine have some common roots. "In ancient Greece, Apollo was the god of medicine *and* music," Kogan explains. "And in many primitive societies, the roles of physician and musician are played by the same person. Sometimes they use medical instruments, sometimes musical instruments, reaching

into the doctor's bag to pull out either an herbal treatment or a harp."

Today, both fields have become far more specialized. Technology has made much more music available, but "People have a less intimate relationship to music than they used to," Kogan believes. "Now we press a button. Before, people had to make music. There's much more beautiful healing to be had with recreational music-making. People can use music to cope with their lives' greatest challenges. It's an unparalleled means of personal expression."

~CRAIG LAMBERT

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PERCH NOT PROZAC

Cheering Chow

EACH YEAR, about 19 million adult Americans report the onset of depression, according to the National Institute of Mental Health. That's 9.5 percent of our adult population. In Japan and Korea, the figure is drastically lower—around 2 percent. Pondering this disparity, scientists noticed that the least depressed popula-

tions, mostly in Asia and Scandinavia, are also those with diets rich in oily fish like salmon and tuna. At the other end of the depression spectrum are countries whose citizens consume the smallest amounts of such fish—places like New Zealand and France, for example, where the incidence of depression is 11 and 16 percent, respectively. Even after factoring in reporting



Growing up, George Gershwin was "a hyperactive trouble maker," says Richard Kogan.

differences caused by societal attitudes about mental health, the discrepancy seems too wide to be mere coincidence.

It doesn't take a big leap to wonder whether omega-3 fatty acids, nutrition's latest darling, might be the reason. Oily fish are loaded with omega-3s, which are purported to prevent heart disease, mitigate attention deficit disorder, and stave off Alzheimer's disease. Now a team of researchers at Harvard-affiliated McLean Hospital has found that rats respond to omega-3s the same way they do to antidepressant drugs such as Prozac and Zoloft.

The investigators engineered a special omega-3-rich rat food by adding fish oil to the regular grain-based chow. Then they measured how quickly the rats stopped swimming when placed in clear Plexiglas cylinders filled with water. The pharmaceutical industry considers the "forced-swim" test a reliable gauge of whether an antidepressant drug works; rats that have consumed drugs proven effective at treating human depression will swim longer before they give up and tread water just enough to keep their heads above the surface. Rats tested after 30 days on the omega-3 food swam 70 percent longer—about three minutes and 20 seconds, versus two minutes flat for the control group. The scientists found similar results when they laced chow with uridine, a chemical that the body's



cells use to metabolize carbohydrates.

The "reward system" works the same way in rats' brains as it does in the brains of humans and other vertebrates, and the parallels to our species seem obvious. "People who are depressed give up on things much more quickly," says associate professor of psychiatry William Carlezon, lead author of the report on the study, published in February in *Biological Psychiatry*. But Carlezon is careful to note that the scientists don't know whether omega-3s and uridine made the rats less depressed. (Rodents are notoriously inarticulate about their feelings.) The researchers know only that on the forced-swim test, the rats respond to the substances the same way they do to Prozac.

The researchers do have reason to believe omega-3s act on parts of the brain that make us depressed. In separate research, professor of psychiatry Perry F. Renshaw, a coauthor on the *Biological Psychiatry* paper, used magnetic resonance

imaging to find that depressed people's brains have stiffer cell membranes. If the cell membranes are an ocean, and neurotransmitter receptors are buoys afloat on that ocean, brain function suffers when the membranes become rigid and the re-

"People who are depressed give up on things much more quickly."

ceptors can't float as freely. Cholesterol stiffens the membranes; omega-3s have the opposite effect. Uridine, meanwhile, helps all the body's cells burn cleaner by aiding their mitochondria in making energy.

There are plenty of simple ways to add omega-3 fatty acids to one's diet: oily fish, fish-oil supplements, walnuts, flaxseed. Grocery stores sell eggs with omega-3s engineered in through chicken feed similar to the rat food used in the McLean study.

It may not be long before uridine, too, becomes readily available: McLean re-

searchers are seeking approval to test uridine supplements in humans. For now, though, the primary sources are sugar beets and molasses. (Uridine is also added to baby formula, something that surprised and puzzled the researchers, given

the cell fuel's relative obscurity. They tried to determine why and when it joined the ingredient list, but couldn't find anyone who knew.)

Ultimately, the lesson Carlezon draws is that the right diet, besides keeping us slim and disease-free, can also make us feel good. "The things you put into your body, the fuels you use for your body, really matter," he explains. Such a simple and seemingly obvious statement becomes bold when applied to treating an illness that's stymied doctors for

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decades, in a culture that sees pills as a panacea. (Worldwide sales of Zoloft alone reached \$845 million in the first quarter of 2005.)

Because most antidepressant drugs on the market act on the brain's serotonin levels and serotonin receptors' sensitivity,

"People automatically assume that any treatment of depression in the brain has to involve serotonin," Carlezon says. He argues that this confuses remedy and cause, like suggesting we fill our houses with water to keep them from catching fire. He's not saying there's no link

between serotonin levels and depression, just that there's "room to ponder the possibility" that other treatments might be effective. ~ELIZABETH GUDRAIS

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PAPER SWAGGER

Self-Esteem, Real and Phony

WHEN TOM BRADY joined the New England Patriots as a sixth-round draft pick in 2000, he told the team's owner, Bob Kraft, "I'm the best decision this organization has ever made." Not surprisingly, Brady was accused of narcissism. But five years and three Super Bowl championships later, the Patriots' quarterback has proven himself a superlative team player, "the ultimate in being confident without having to be a show-off," says Seth Rosenthal, Ph.D. '05.

Contrast that with Kobe Bryant, the Los Angeles Lakers star whom some have accused of intentionally playing poorly for the first three periods so he can lead a miraculous comeback in the fourth. Lakers coach Phil Jackson even hired a narcissism coach to help deal with Bryant's famous demands and feuds with other players. Rosenthal's dissertation research—which, he's quick to add, did not include the two sports stars among its subjects—presents ways to separate the Bryants from the Bradys of our world.

In disentangling the two concepts, Rosenthal aims to clear self-esteem's good name. The concept's popularity soared in the 1980s, but more recently it has taken a beating in the popular media, which confuses it with narcissism. A 2002 *New York Times* article headlined "The Trouble With Self-Esteem," for instance, de-

scribed research results indicating that violent criminals tend to be narcissists. "Narcissism is not a kind of self-esteem," Rosenthal says. "Equating confident people with narcissistic people is like equating happy and manic and then saying, 'Well, maybe happiness isn't such a good thing after all.'"

To find out how narcissists really feel about themselves, Rosenthal used a computer test based on the Implicit Association Test codeveloped by Mahzarin Banaji, Cabot professor of social ethics in the department of psychology and Pforzheimer professor at Radcliffe (see "Stealthy Attitudes," July-August 2002, page 18). First, the test asks subjects to associate themselves with positive qualities and dissociate themselves from bad

qualities, and measures how quickly the subjects press computer keys to indicate those associations. Then the instructions are reversed (bad qualities are to be marked "me" and good qualities "not me") and response time is measured again. Those subjects quicker to assign positive qualities to themselves have high self-esteem; those quicker to assign themselves negative qualities have low self-esteem. Despite the sky-high self-regard narcissists project, Rosenthal found their implicit self-esteem was low.

Thus, he suggests, parents needn't worry that instilling healthy self-confidence in their children will turn them into creeps. In fact, psychologists believe narcissism—a diagnosable personality disorder whose symptoms include an exaggerated sense of self-worth, feelings of superiority over other people, a sense of entitlement, a willingness to exploit others, and a lack of empathy—is associated with parents who are cold and rejecting,

not overly attentive and doting. Because narcissists didn't get enough positive reinforcement as children, they need to prop up their egos with their own boasting and others' adoration. But because that inflated self-image lacks internal support, it is fragile, like a reflection that dissolves with the pond's disturbance, as in the Greek myth that gave narcissism its name. Underneath lies self-loathing.

The confusion, Rosenthal says, arises because psychologists have measured self-esteem poorly. The widely used 1965 Rosenberg self-esteem scale, for example, includes statements like, "On the



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