

Change Your Life, Change Your Mind

HOPE WINNER

BELIEVES STONE AGE

STRATEGIES CAN

REMEDY MODERN

DEPRESSION

Steve Ilardi had grown restless after college. Although he had worked as a computer consultant for the Peace Corps and the Centers for Disease Control, he yearned for a new direction. So he took a friend's advice and began volunteering at the Georgia Mental Health Institute in Atlanta.

There he worked in a unit that housed—or “warehoused,” as he puts it—patients with schizophrenia. Many had been abandoned by their families and faced the prospect of spending their lives in mental health institutions. It struck him: “These were people just like me in nearly every way, except for the fact that they were suffering from this tragic disease,” Ilardi recalls. “They could get lonely just like anyone else; they could suffer. They could connect, but they didn't have that option.”

Their isolation haunted Ilardi. He started hanging out with patients for hours each week, playing cards, talking politics, befriending them. The interaction fulfilled his need to reach out, but it also piqued his curiosity. “I got hooked from a scientific angle,” he explains. “I kept wondering, ‘What the hell is going on with these patients? What's happening at a biological level?’”

Soon Ilardi enrolled in night school. Then, at 27, with only three psychology classes on his college transcript, he applied to clinical psychology graduate programs. Ilardi landed at Duke, where he was drawn to depression-treatment research. After a postdoctoral position at the University of Colorado, Ilardi joined the KU faculty in 1997, ready to defend the world from depression.

BY KATIE GREENE

Depression can grow so severe that a sufferer might actually perceive the world in muted hues, with subdued physical sensations.

Now an associate professor of psychology, Ilardi remains wide-eyed and passionate about his research, and his zeal translates into his compelling classroom presence. Last fall, KU seniors bestowed their traditional Honor for an Outstanding Progressive Educator—the HOPE Award—on Ilardi, whose large classes in personality and abnormal psychology are mainstays for students in several disciplines.

The enthusiasm that binds the teacher and students belies the bleak epidemic that dominates their discussions. Ilardi rattles off grim statistics: One in five Americans will suffer from depression, and the disease can be fatal—roughly 30,000 Americans take their lives every year, largely because of the illness. Rates of depression continue to grow: Each successive generation for the past 80 years has been afflicted in greater numbers.

Most of us have a sense of what it means to be depressed—if not from firsthand experience or the trials of someone close, then from commercials advertising the arsenal of antidepressant drugs on the market. Depression occurs when someone's mood, or background emotional state, remains perpetually low. But Ilardi stresses that depression isn't just about negative thoughts and feelings.

The disease also manifests itself in real, often debilitating, physical impairments. Severely depressed people can suffer insomnia, loss of energy and an inability to concentrate. What's more, depression can grow so severe that a sufferer might actually perceive the world in muted hues, with subdued physical sensations. In other words, the crucial brain processes that normally would allow

them to enjoy a sunny day just don't work any longer.

Even more alarming than the epidemic is the fact that we're not very good at treating it, Ilardi says. Psychiatrists and psychologists typically treat depression with drugs or talk therapy, but many patients avoid therapy and take only antidepressants. These drugs are prescribed most often by general practitioners, often without an assessment, consultation or sufficient education about the treatment. Then most patients quit taking the pills after a while. "And as soon as they stop taking the medication," Ilardi says, "they have about a 50-50 chance of having the depression return in under a year."

If depression strikes once, there is a lifetime recurrence rate of 70 percent. A person who has suffered three bouts with the illness must cope with the 90 percent likelihood that it will return.

As a clinical psychologist, Ilardi tests new treatments for depression. Currently, he proposes an innovative method that abandons medication, emphasizing instead a change in environment. His method reintroduces lifestyle changes that act as natural antidepressants, and he believes these habits can change a patient's brain and behavior and ultimately conquer depression. This semester, he has begun to gather data in an initial trial with eight KU participants recruited through fliers, the University Daily Kansan and introductory psychology classes. He calls his treatment Therapeutic Lifestyle Change, or TLC.

TLC's six essentials are:

- aerobic exercise
- adequate sleep
- natural sunlight exposure

- omega-3 fatty acid supplements
- enhanced social interaction
- increased activity to prevent rumination (repetitive negative thoughts)

As Ilardi explains it, this simple, behavioral approach makes sense when we consider depression's effect on the brain. Magnetic resonance imaging (MRI) scans reveal that the brain of a depressed person functions differently from that of a depression-free person. But, contrary to popular belief, the existence of a chemical imbalance in the brain does not imply that an individual needs medication to get well.

Although chemicals from an antidepressant medication do in fact alter the brain's activity and ultimately a person's brainscape, Ilardi argues that brain changes result from everything we do, everything we think and experience. For example, neuro-cognitive research has shown that merely reading this article will forever change some of the neural pathways in your brain, altering how they work and look, albeit on a very small scale.

This point forms the crux of Ilardi's theory; it is the reason he aims to fight the illness without prescription drugs whenever possible. If altering a person's behavior will produce the same beneficial brain changes that can come from medication—without the risks and side effects—then the advantages are obvious.

Pills can work, Ilardi says, but recently published research suggests that many people who experience relief when they take a drug like Prozac or Zoloft do so because of a placebo effect. While improvement for any reason may be welcome, the drawbacks of medication are numerous. Recent studies have shown that some medications could increase

■ Ilardi is a compelling presence in the classroom, where he's known for his passionate lectures and inventive methods for connecting with students. In 2004 he won the HOPE Award, the only KU honor for teaching excellence given exclusively by students.

the risk of suicidal behavior in some patients. Other less deadly but still onerous troubles include impulsive, violent behavior, sexual side effects, and even emotional numbing. And then there is that high chance of a depression relapse, especially when a person stops taking the medication.



The idea for the TLC treatment grew from Ilardi's interest in two related areas: cognitive neuroscience and evolutionary psychology. These subsets of his discipline tether psychology to the sciences of biology, chemistry and physics. From cognitive neuroscience (the field that uses MRIs and other techniques to snatch glimpses of brain activity), researchers can see how the brain of a depressed person alters when he or she exercises, for example. Certain behaviors have been shown to benefit a person's brain, and those are the cornerstones of TLC.

While cognitive neuroscience gives Ilardi's proposed treatment some tenabil-

ity beyond a "new-age," feel-good hunch, the real roots of TLC are in evolutionary psychology. This emerging branch of psychology follows the same premise that biologists use with Darwin's theory of natural selection.

The idea is that ancient humans whose genes equipped them mentally and physically to succeed tended to survive longer and reproduce more, thereby passing on the "winning" genes to the next generation.

Currently, our genetic makeup looks much like our ancestors' during the Pleistocene, an era that dates from about 2 million to roughly 10,000 years ago. Over these years, humans lived in groups and hunted and gathered their food, with plenty of time to gain proficiency at these activities.

But the world morphed at the end of the Pleistocene, when agriculture was introduced. People started to domesticate animals and create cities, a novel form of settlement. Survival techniques honed over the previous 2 million years suddenly were not in demand. At the same time, human genes didn't have

time to adjust to the change. It was as if the rapidly changing environment was a race car taking off at full speed, leaving the genome motionless at the start line.

"We are designed largely for a Stone Age environment, and the technological evolution that has occurred in the interim has happened much faster than our physiological evolution," Ilardi says. "Natural selection usually operates on a time scale of thousands of generations, and there just haven't been that many generations since the advent of agriculture, 13,000 years ago."

In other words, depression now runs rampant because our bodies are out of sync with today's environment. Ilardi advocates restoring some of the Stone Age elements to our modern lives, without sacrificing cars or cell phones. He's betting this back-to-basics treatment will work.

For instance, it appears that ancient humans exercised incessantly, whether they were hunting and gathering for sustenance or merely traveling to new locations. Now, finding time for aerobic activity—or the money for a gym mem-



bership—is a challenge. Reintroduce regular physical activity, and the contemporary human is one step less out of sync with his or her environment.

Two other missing elements involve indoor lighting. First, the light bulb has allowed us to stay awake longer, extending our days far beyond sunset. This leads to an unhealthy dearth of sleep for most adults. Second, artificial lights, the kind most of us experience during the day, are bright enough to trick our brains into staying awake, but not bright enough to reset our circadian clock, the mechanism that governs sleep regulation. In fact, fluorescent lights are 20 to 50 times dimmer than natural sunlight. Only rays of sun (or a specialized light box, used in Ilardi's study) are intense enough to effectively reset the brain circuits that govern sleep.

A fourth element of TLC deals with diet. Even though the brain is actually 60 percent fat by dry weight, the most crucial fatty building blocks of the brain—omega 3 fatty acids—have been disappearing from American diets for the past century. Omega-3s are synthesized by plants and algae, and they used to be abundant in the human diet before the practice of grain-feeding livestock and fish became widespread. Omega-3 supplements have been shown to relieve postpartum depression because they clear the buildup of harmful dietary fats in cell membranes, allowing circuits in the brain to function better.

The last two aspects of Ilardi's treat-

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ment are connected. We are social creatures—in the Pleistocene, humans lived in close-knit groups of 50 to 150 people and were rarely alone—and we still crave interaction with others. Contemporary living structures, however, can foster loneliness. And when a person prone to depression is alone, negative thoughts can creep in and relentlessly spin, causing a vicious downward spiral in mood. Dwelling on negative ideas could rarely have occurred when there was dinner to hunt or a clan of people with which to interact, Ilardi argues.

Each of the six elements, when applied separately, has been shown in research to reduce symptoms of depression. But Ilardi is the only current researcher to unite them in a dramatically different treatment framework.



Ilardi isn't the first psychologist to use the evolutionary model to approach depression. Traditional evolutionary thinking about the cause of depression claims that pro-

longed sadness is naturally selected by human evolution. That is, humans have evolved so that depression can be worthwhile, because when people become depressed, the community of friends or family rallies around them, giving them emotional support to redirect their lives. In this scenario, depression is seen as a helpful signal for a transition or as a community-building tool.

This doesn't make much sense to Ilardi, who calls scientists ascribing to this theory "hyper-adaptationists." He says it is incorrect to presume that because a trait occurs, it must be an adaptation. His ideas are indeed out of step with the mainstream, but he has confidence—tempered by a large dose of humility—that he's on to something big. Regarding the intuitiveness and simplicity of his experimental treatment, Ilardi says, "I think sometimes the ideas that have the most staying power in science are those that, when people see them, they think, 'Oh, of course,' but yet it's only obvious in hindsight."

Edward Craighead, Ilardi's mentor at Duke and now the chair of the psychol-

Six essentials of TLC

Therapeutic Lifestyle Change, or TLC, is an innovative treatment for depression based on the idea that our modern brains are still wired for Stone Age lifestyles.

The method abandons medication and emphasizes lasting changes in environment and lifestyle. Brain change results not only from pharmaceutical chemicals, but also from everything we do, think and experience.

Pharmaceutical chemicals can work, but could lead to serious side effects; there is also a high chance of relapse when medications are stopped.

There are six essential aspects to TLC:

■ Aerobic exercise

Exercise is a potent antidepressant. Elevate your pulse between 120 to 160 beats per minute for 35 minutes three times a week.



■ Adequate sleep

Chronic sleep deprivation is a risk factor for depression. Sleep 7 to 8 hours nightly.

■ Natural sunlight

The brain needs 2,500 lux for 30 to 60 minutes per day. Spend 30 minutes outdoors on a sunny day or in front of a 10,000 lux light box on overcast days.

■ Omega-3 fatty acids

Omega-3 intake (particularly the molecular form known as EPA) has

ogy department at the University of Colorado, says, “He’s going beyond the current programs and there’s a huge amount of data showing it could work.” Although the two scientists did not collaborate on depression treatments based in evolution, Craighead is eager to see whether the treatment works. “He’s talking about a lifestyle change that could treat acute attacks,” he says.

While still technically experimental, TLC methods in private clinical settings have produced encouraging results. But before the world will know whether Ilardi has found a better way, many more trials must be held so statistical analysis can quantify the results.

Meanwhile, Ilardi strives to keep those missing evolutionary elements in his life—to reach out to others just as he did so many years ago, when he first encountered people struggling with mental illness. “I think it makes sense to live in a way that integrates the best of our genetic and our cultural evolutionary heritage,” he says.

“What this means for me is I want to have my iPod, I want to drive to and from work, but I also want to invest in relationships, because that’s what we’ve been selected for ... to spend our time and energy on those connections with others.”

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been shown to relieve depression. Research recommends a daily dose of 1,000 milligrams of EPA, typically in the form of highly concentrated fish oil.

■ **Social interaction**

A social support network helps prevent depression when we suffer major losses in life. Separation from friends and family is a common trigger for depression.

■ **Reduce negative thoughts**

Loneliness can lead to a tendency to dwell on repetitive, negative thoughts. Interact socially and learn to redirect attention to more engaging activities when alone.

For more information or to participate in the study, contact Leslie Karwoski, project coordinator, at 785-218-6336.

■ Ilardi builds rapport with students in class and via a Web site where they can post questions and comments. One student made a special request. “She said I talk so fast it’s sometimes hard to get everything down in the notes and still track the lecture,” Ilardi says. “She pleaded with me to substitute my typical caffeine-laced beverages with water.”