

Student establishes a compromise position.

To reach a compromise, we also have to examine the other side of the issue. Some gun-control advocates argue that all guns are unnecessary and should be outlawed. The problem with this argument is that guns will still be available to those who do not mind breaking the law. Until an economically sound and feasible way of controlling illegal guns in America is found, guns cannot be totally removed, no matter how much legislation is passed. This means that if guns are to be outlawed for uses other than recreational uses, a way must be found to combat the illegal gun trade that will evolve. Tough criminal laws and a large security force are all that can be offered to stop illegal uses of guns until better technology is available. This means that, perhaps, a good resolution would involve gradual restrictions on guns, until eventually guns were restricted only to recreational uses in a controlled setting for citizens not in the police or military.

Conclusion restates student's claim.

Both sides on this issue have valid points. Any middle ground needs to offer something to each side. It must address the reasons people feel that they need guns for protection, allow for valid recreational use, and keep guns out of the hands of the public, except for properly trained police officers. Time and money will be needed to move toward the removal of America's huge handgun arsenal. But, sooner or later a compromise on the issue of gun control must be made to make America a safer, better place to live.



THE BATTLE FOR YOUR BRAIN | RONALD BAILEY

A graduate of the University of Virginia, Ronald Bailey is science correspondent for *Reason* magazine and *Reason.com*. A longtime global warming skeptic and author of *Global Warming and Other Eco-Myths* (2002), Bailey has more recently changed his position. He has also turned his attention to the advances in biotechnology, publishing in 2005 his book *Liberation Biology: The Moral and Scientific Case for the Biotech Revolution*. The following essay was published in *Reason* magazine in February 2003. The essay is lengthy and serious, but worth your study and reflection as a view into an important medical debate.

PREREADING QUESTIONS Are you excited about scientific advances designed to improve the human brain? Why or why not?

"We're on the verge of profound changes in our ability to manipulate the brain," says Paul Root Wolpe, a bioethicist at the University of Pennsylvania. He isn't kidding. The dawning age of neuroscience promises not just new treatments for Alzheimer's and other brain diseases but enhancements to improve memory, boost intellectual acumen, and fine-tune our emotional responses. "The next two decades will be the golden age of neuroscience," declares Jonathan Moreno, a bioethicist at the University of Virginia. "We're on the threshold of the kind of rapid growth of information in neuroscience that was true of genetics fifteen years ago."

One man's golden age is another man's dystopia. One of the more vociferous critics of such research is Francis Fukuyama, who warns in his book *Our Posthuman Future* that "we are already in the midst of this revolution" and "we should use the power of the state to regulate it" (emphasis his). In May a cover story in the usually pro-technology *Economist* worried that "neuroscientists may soon be able to screen people's brains to assess their mental health, to distribute that information, possibly accidentally, to employers or insurers, and to 'fix' faulty personality traits with drugs or implants on demand."

There are good reasons to consider the ethics of tinkering directly with the organ from which all ethical reflection arises. Most of those reasons boil down to the need to respect the rights of the people who would use the new technologies. Some of the field's moral issues are common to all biomedical research: how to design clinical trials ethically, how to ensure subjects' privacy, and so on. Others are peculiar to neurology. It's not clear, for example, whether people suffering from neurodegenerative disease can give informed consent to be experimented on.

Last May the Dana Foundation sponsored an entire conference at Stanford on "neuroethics." Conferees deliberated over issues like the moral questions raised by new brain scanning techniques, which some believe will lead to the creation of truly effective lie detectors. Participants noted that scanners might also be able to pinpoint brain abnormalities in those accused of breaking the law, thus changing our perceptions of guilt and innocence. Most nightmarishly, some worried that governments could one day use brain implants to monitor and perhaps even control citizens' behavior.

But most of the debate over neuroethics has not centered around patients' or citizens' autonomy, perhaps because so many of the field's critics themselves hope to restrict that autonomy in various ways. The issue that most vexes them is the possibility that neuroscience might enhance previously "normal" human brains.

The tidiest summation of their complaint comes from the conservative columnist William Safire. "Just as we have anti-depressants today to elevate mood," he wrote after the Dana conference, "tomorrow we can expect a kind of Botox for the brain to smooth out wrinkled temperaments, to turn shy people into extroverts, or to bestow a sense of humor on a born grouch. But what price will human nature pay for these nonhuman artifices?"

Truly effective neuropharmaceuticals that improve moods and sharpen mental focus are already widely available and taken by millions. While there is

some controversy about the effectiveness of Prozac, Paxil, and Zoloft, nearly 30 million Americans have taken them, with mostly positive results. In his famous 1993 book *Listening to Prozac*, the psychiatrist Peter Kramer describes patients taking the drug as feeling “better than well.” One Prozac user, called Tess, told him that when she isn’t taking the medication, “I am not myself.”

ONE PILL MAKES YOU SMARTER . . .

- 8 That’s exactly what worries Fukuyama, who thinks Prozac looks a lot like *Brave New World*’s soma. The pharmaceutical industry, he declares, is producing drugs that “provide self-esteem in the bottle by elevating serotonin in the brain.” If you need a drug to be your “self,” these critics ask, do you really have a self at all?
- 9 Another popular neuropharmaceutical is Ritalin, a drug widely prescribed to remedy attention deficit hyperactivity disorder (ADHD), which is characterized by agitated behavior and an inability to focus on tasks. Around 1.5 million schoolchildren take Ritalin, which recent research suggests boosts the activity of the neurotransmitter dopamine in the brain. Like all psychoactive drugs, it is not without controversy. Perennial psychiatric critic Peter Breggin argues that millions of children are being “drugged into more compliant or submissive state[s]” to satisfy the needs of harried parents and school officials. For Fukuyama, Ritalin is prescribed to control rambunctious children because “parents and teachers . . . do not want to spend the time and energy necessary to discipline, divert, entertain, or train difficult children the old-fashioned way.”
- 10 Unlike the more radical Breggin, Fukuyama acknowledges that drugs such as Prozac and Ritalin have helped millions when other treatments have failed. Still, he worries about their larger social consequences. “There is a disconcerting symmetry between Prozac and Ritalin,” he writes. “The former is prescribed heavily for depressed women lacking in self-esteem; it gives them more the alpha-male feeling that comes with high serotonin levels. Ritalin, on the other hand, is prescribed largely for young boys who do not want to sit still in class because nature never designed them to behave that way. Together, the two sexes are gently nudged toward that androgynous median personality, self-satisfied and socially compliant, that is the current politically correct outcome in American society.”
- 11 Although there are legitimate questions here, they’re related not to the chemicals themselves but to who makes the decision to use them. Even if Prozac and Ritalin can help millions of people, that doesn’t mean schools should be able to force them on any student who is unruly or bored. But by the same token, even if you accept the most radical critique of the drug—that ADHD is not a real disorder to begin with—that doesn’t mean Americans who exhibit the symptoms that add up to an ADHD diagnosis should not be allowed to alter their mental state chemically, if that’s an outcome they want and a path to it they’re willing to take.
- 12 Consider Nick Megibow, a senior majoring in philosophy at Gettysburg College. “Ritalin made my life a lot better,” he reports. “Before I started taking Ritalin as a high school freshman, I was doing really badly in my classes. I had really bad grades, Cs and Ds mostly. By sophomore year, I started taking

Ritalin, and it really worked amazingly. My grades improved dramatically to mostly As and Bs. It allows me to focus and get things done rather than take three times the amount of time that it should take to finish something." If people like Megibow don't share Fukuyama's concerns about the wider social consequences of their medication, it's because they're more interested, quite reasonably, in feeling better and living a successful life.

What really worries critics like Safire and Fukuyama is that Prozac and Ritalin may be the neuropharmacological equivalent of bearskins and stone axes compared to the new drugs that are coming. Probably the most critical mental function to be enhanced is memory. And this, it turns out, is where the most promising work is being done. At Princeton, biologist Joe Tsien's laboratory famously created smart mice by genetically modifying them to produce more NMDA brain receptors, which are critical for the formation and maintenance of memories. Tsien's mice were much faster learners than their unmodified counterparts. "By enhancing learning, that is, memory acquisition, animals seem to be able to solve problems faster," notes Tsien. He believes his work has identified an important target that will lead other researchers to develop drugs that enhance memory.

A number of companies are already hard at work developing memory drugs. Cortex Pharmaceuticals has developed a class of compounds called AMPA receptor modulators, which enhance the glutamate-based transmission between brain cells. Preliminary results indicate that the compounds do enhance memory and cognition in human beings. Memory Pharmaceuticals, cofounded by Nobel laureate Eric Kandel, is developing a calcium channel receptor modulator that increases the sensitivity of neurons and allows them to transmit information more speedily and a nicotine receptor modulator that plays a role in synaptic plasticity. Both modulators apparently improve memory. Another company, Targacept, is working on the nicotinic receptors as well.

All these companies hope to cure the memory deficits that some 30 million baby boomers will suffer as they age. If these compounds can fix deficient memories, it is likely that they can enhance normal memories as well. Tsien points out that a century ago the encroaching senility of Alzheimer's disease might have been considered part of the "normal" progression of aging. "So it depends on how you define *normal*," he says. "Today we know that most people have less good memories after age forty, and I don't believe that's a normal process."

EIGHT OBJECTIONS

And so we face the prospect of pills to improve our mood, our memory, our intelligence, and perhaps more. Why would anyone object to that?

Eight objections to such enhancements recur in neuroethicists' arguments. None of them is really convincing.

Neurological enhancements permanently change the brain. Erik Parens of the Hastings Center, a bioethics think tank, argues that it's better to enhance a child's performance by changing his environment than by changing his brain—that it's better to, say, reduce his class size than to give him Ritalin. But

this is a false dichotomy. Reducing class size is aimed at changing the child's biology too, albeit indirectly. Activities like teaching are supposed to induce biological changes in a child's brain, through a process called *learning*.

19 Fukuyama falls into this same error when he suggests that even if there is some biological basis for their condition, people with ADHD "clearly . . . can do things that would affect their final degree of attentiveness or hyperactivity. Training, character, determination, and environment more generally would all play important roles." So can Ritalin, and much more expeditiously, too. "What is the difference between Ritalin and the Kaplan SAT review?" asks the Dartmouth neuroscientist Michael Gazzaniga. "It's six of one and a half dozen of the other. If both can boost SAT scores by, say, 120 points, I think it's immaterial which way it's done."

20 *Neurological enhancements are antiegalitarian.* A perennial objection to new medical technologies is the one Parens calls "unfairness in the distribution of resources." In other words, the rich and their children will get access to brain enhancements first, and will thus acquire more competitive advantages over the poor.

21 This objection rests on the same false dichotomy as the first. As the University of Virginia's Moreno puts it, "We don't stop people from giving their kids tennis lessons." If anything, the new enhancements might *increase* social equality. Moreno notes that neuropharmaceuticals are likely to be more equitably distributed than genetic enhancements, because "after all, a pill is easier to deliver than DNA."

22 *Neurological enhancements are self-defeating.* Not content to argue that the distribution of brain enhancements won't be egalitarian enough, some critics turn around and argue that it will be *too* egalitarian. Parens has summarized this objection succinctly: "If everyone achieved the same relative advantage with a given enhancement, then ultimately no one's position would change; the 'enhancement' would have failed if its purpose was to increase competitive advantage."

23 This is a flagrant example of the zero-sum approach that afflicts so much bioethical thought. Let's assume, for the sake of argument, that everyone in society will take a beneficial brain-enhancing drug. Their relative positions may not change, but the overall productivity and wealth of society would increase considerably, making everyone better off. Surely that is a social good.

24 *Neurological enhancements are difficult to refuse.* Why exactly would everyone in the country take the same drug? Because, the argument goes, competitive pressures in our go-go society will be so strong that a person will be forced to take a memory-enhancing drug just to keep up with everyone else. Even if the law protects freedom of choice, social pressures will draw us in.

25 For one thing, this misunderstands the nature of the technology. It's not simply a matter of popping a pill and suddenly zooming ahead. "I know a lot of smart people who don't amount to a row of beans," says Gazzaniga "They're just happy underachieving, living life below their potential. So a pill that pumps up your intellectual processing power won't necessarily give you the drive and ambition to use it."

Beyond that, it's not as though we don't all face competitive pressures anyway—to get into and graduate from good universities, to constantly upgrade skills, to buy better computers and more productive software, whatever. Some people choose to enhance themselves by getting a Ph.D. in English; others are happy to stop their formal education after high school. It's not clear why a pill should be more irresistible than higher education, or why one should raise special ethical concerns while the other does not.

Neurological enhancements undermine good character. For some critics, the comparison to higher education suggests a different problem. We should strive for what we get, they suggest; taking a pill to enhance cognitive functioning is just too easy. As Fukuyama puts it: "The normal, and morally acceptable, way of overcoming low self-esteem was to struggle with oneself and with others, to work hard, to endure painful sacrifices, and finally to rise and be seen as having done so."

"By denying access to brain-enhancing drugs, people like Fukuyama are advocating an exaggerated stoicism," counters Moreno. "I don't see the benefit or advantage of that kind of tough love." Especially since there will still be many different ways to achieve things and many difficult challenges in life. Brain-enhancing drugs might ease some of our labors, but as Moreno notes, "there are still lots of hills to climb, and they are pretty steep." Cars, computers, and washing machines have tremendously enhanced our ability to deal with formerly formidable tasks. That doesn't mean life's struggles have disappeared—just that we can now tackle the next ones.

Neurological enhancements undermine personal responsibility. Carol Freedman, a philosopher at Williams College, argues that what is at stake "is a conception of ourselves as responsible agents, not machines." Fukuyama extends the point, claiming that "ordinary people" are eager to "medicalize as much of their behavior as possible and thereby reduce their responsibility for their own actions." As an example, he suggests that people who claim to suffer from ADHD "want to absolve themselves of personal responsibility."

But we are not debating people who might use an ADHD diagnosis as an excuse to behave irresponsibly. We are speaking of people who use Ritalin to change their behavior. Wouldn't it be more irresponsible of them to not take corrective action?

Neurological enhancements enforce dubious norms. There are those who assert that corrective action might be irresponsible after all, depending on just what it is that you're trying to correct. People might take neuropharmaceuticals, some warn, to conform to a harmful social conception of normality. Many bioethicists—Georgetown University's Margaret Little, for example—argue that we can already see this process in action among women who resort to expensive and painful cosmetic surgery to conform to a social ideal of feminine beauty. Never mind for the moment that beauty norms for both men and women have never been so diverse. Providing and choosing to avail oneself of that surgery makes one complicit in norms that are morally wrong, the critics argue. After all, people should be judged not by their physical appearances but by the content of their characters.

- 32 That may be so, but why should someone suffer from society's slights if she can overcome them with a nip here and a tuck there? The norms may indeed be suspect, but the suffering is experienced by real people whose lives are consequently diminished. Little acknowledges this point, but argues that those who benefit from using a technology to conform have a moral obligation to fight against the suspect norm. Does this mean people should be given access to technologies they regard as beneficial only if they agree to sign on to a bioethical fatwa?
- 33 Of course, we should admire people who challenge norms they disagree with and live as they wish, but why should others be denied relief just because some bioethical commissars decree that society's misdirected values must change? Change may come, but real people should not be sacrificed to some restrictive bioethical utopia in the meantime. Similarly, we should no doubt value depressed people or people with bad memories just as highly as we do happy geniuses, but until that glad day comes people should be allowed to take advantage of technologies that improve their lives in the society in which they actually live.
- 34 Furthermore, it's far from clear that everyone will use these enhancements in the same ways. There are people who alter their bodies via cosmetic surgery to bring them closer to the norm, and there are people who alter their bodies via piercings and tattoos to make them more individually expressive. It doesn't take much imagination to think of unusual or unexpected ways that Americans might use mind enhancing technologies. Indeed, the war on drugs is being waged, in part, against a small but significant minority of people who prefer to alter their consciousness in socially disapproved ways.
- 35 *Neurological enhancements make us inauthentic.* Parens and others worry that the users of brain-altering chemicals are less authentically themselves when they're on the drug. Some of them would reply that the exact opposite is the case. In *Listening to Prozac*, Kramer chronicles some dramatic transformations in the personalities and attitudes of his patients once they're on the drug. The aforementioned Tess tells him it was "as if I had been in a drugged state all those years and now I'm clearheaded."
- 36 Again, the question takes a different shape when one considers the false dichotomy between biological and "nonbiological" enhancements. Consider a person who undergoes a religious conversion and emerges from the experience with a more upbeat and attractive personality. Is he no longer his "real" self? Must every religious convert be deprogrammed?
- 37 Even if there were such a thing as a "real" personality, why should you stick with it if you don't like it? If you're socially withdrawn and a pill can give you a more vivacious and outgoing manner, why not go with it? After all, you're choosing to take responsibility for being the "new" person the drug helps you to be.

AUTHENTICITY AND RESPONSIBILITY

- 38 "Is it a drug-induced personality or has the drug cleared away barriers to the real personality?" asks the University of Pennsylvania's Wolpe. Surely the

person who is choosing to use the drug is in a better position to answer that question than some bioethical busybody.

This argument over authenticity lies at the heart of the neuroethicists' objections. If there is a single line that divides the supporters of neurological freedom from those who would restrict the new treatments, it is the debate over whether a natural state of human being exists and, if so, how appropriate it is to modify it. Wolpe makes the point that in one sense cognitive enhancement resembles its opposite, Alzheimer's disease. A person with Alzheimer's loses her personality. Similarly, an enhanced individual's personality may become unrecognizable to those who knew her before.

Not that this is unusual. Many people experience a version of this process when they go away from their homes to college or the military. They return as changed people with new capacities, likes, dislikes, and social styles, and they often find that their families and friends no longer relate to them in the old ways. Their brains have been changed by those experiences, and they are not the same people they were before they went away. Change makes most people uncomfortable, probably never more so than when it happens to a loved one. Much of the neuro-Luddites' case rests on a belief in an unvarying, static personality, something that simply doesn't exist,

It isn't just personality that changes over time. Consciousness itself is far less static than we've previously assumed, a fact that raises contentious questions of free will and determinism. Neuroscientists are finding more and more of the underlying automatic processes operating in the brain, allowing us to take a sometimes disturbing look under our own hoods. "We're finding out that by the time we're conscious of doing something, the brain's already done it," explains Gazzaniga. Consciousness, rather than being the director of our activities, seems instead to be a way for the brain to explain to itself why it did something.

Haunting the whole debate over neuroscientific research and neuroenhancements is the fear that neuroscience will undercut notions of responsibility and free will. Very preliminary research has suggested that many violent criminals do have altered brains. At the Stanford conference, *Science* editor Donald Kennedy suggested that once we know more about brains, our legal system will have to make adjustments in how we punish those who break the law. A murderer or rapist might one day plead innocence on the grounds that "my amygdala made me do it." There is precedent for this: The legal system already mitigates criminal punishment when an offender can convince a jury he's so mentally ill that he cannot distinguish right from wrong.

Of course, there are other ways such discoveries might pan out in the legal system, with results less damaging to social order but still troubling for notions of personal autonomy. One possibility is that an offender's punishment might be reduced if he agrees to take a pill that corrects the brain defect he blames for his crime. We already hold people responsible when their drug use causes harm to others—most notably, with laws against drunk driving. Perhaps in the future we will hold people responsible if they fail to take drugs that would help prevent them from behaving in harmful ways. After all, which

is more damaging to personal autonomy, a life confined to a jail cell or roaming free while taking a medication?

- 44 The philosopher Patricia Churchland examines these conundrums in her [2002] book, *Brainwise: Studies in Neurophilosophy*. "Much of human social life depends on the expectation that agents have control over their actions and are responsible for their choices," she writes. "In daily life it is commonly assumed that it is sensible to punish and reward behavior so long as the person was in control and chose knowingly and intentionally." And that's the way it should remain, even as we learn more about how our brains work and how they sometimes break down.
- 45 Churchland points out that neuroscientific research by scientists like the University of Iowa's Antonio Damasio strongly shows that emotions are an essential component of viable practical reasoning about what a person should do. In other words, neuroscience is bolstering philosopher David Hume's insight that "reason is and ought only to be the slave of the passions." Patients whose affects are depressed or lacking due to brain injury are incapable of judging or evaluating between courses of action. Emotion is what prompts and guides our choices.
- 46 Churchland further argues that moral agents come to be morally and practically wise not through pure cognition but by developing moral beliefs and habits through life experiences. Our moral reflexes are honed through watching and hearing about which actions are rewarded and which are punished; we learn to be moral the same way we learn language. Consequently, Churchland concludes "the default presumption that agents are responsible for their actions is empirically necessary to an agent's learning, both emotionally and cognitively, how to evaluate the consequences of certain events and the price of taking risks."
- 47 It's always risky to try to derive an "ought" from an "is," but neuroscience seems to be implying that liberty—i.e., letting people make choices and then suffer or enjoy the consequences—is essential for inculcating virtue and maintaining social cooperation. Far from undermining personal responsibility, neuroscience may end up strengthening it.

FOR NEUROLOGICAL LIBERTY

- 48 Fukuyama wants to "draw red lines" to distinguish between therapy and enhancement, "directing research toward the former while putting restrictions on the latter." He adds that "the original purpose of medicine is, after all, to heal the sick, not turn healthy people into gods." He imagines a federal agency that would oversee neurological research, prohibiting anything that aims at enhancing our capacities beyond some notion of the human norm.
- 49 "For us to flourish as human beings, we have to live according to our nature, satisfying the deepest longings that we as natural beings have," Fukuyama told the Christian review *Books & Culture* last summer. "For example, our nature gives us tremendous cognitive capabilities, capability for reason, capability to learn, to teach ourselves things, to change our opinions, and so forth. What follows from that? A way of life that permits such growth is better than a life in which this capacity is shriveled and stunted in various ways." This is absolutely

correct. The trouble is that Fukuyama has a shriveled, stunted vision of human nature, leading him and others to stand athwart neuroscientific advances that will make it possible for more people to take fuller advantage of their reasoning and learning capabilities.

Like any technology, neurological enhancements can be abused, especially if they're doled out—or imposed—by an unchecked authority. But Fukuyama and other critics have not made a strong case for why *individuals*, in consultation with their doctors, should not be allowed to take advantage of new neuroscientific breakthroughs to enhance the functioning of their brains. And it is those individuals that the critics will have to convince if they seriously expect to restrict this research.

It's difficult to believe that they'll manage that. In the 1960s many states outlawed the birth control pill, on the grounds that it would be too disruptive to society. Yet Americans, eager to take control of their reproductive lives, managed to roll back those laws, and no one believes that the pill could be re-outlawed today.

Moreno thinks the same will be true of the neurological advances to come. "My hunch," he says, "is that in the United States, medications that enhance our performance are not going to be prohibited." When you consider the sometimes despairing tone that Fukuyama and others like him adopt, it's hard not to conclude that on that much, at least, they agree.

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QUESTIONS FOR READING

1. What are some of the medical possibilities that may be coming from advances in neurotechnology?
2. What is the area of greatest concern for those who are worried about these potential neurotechnologies?
3. What group of people are heavy users of Prozac? Of Ritalin? What are the objections to these psychoactive drugs?
4. What, apparently, will be the next type of psychoactive drug?
5. State the eight objections to new drugs to enhance mood, memory, and intelligence. Then state Bailey's response to each objection in your own words.
6. Explain the concerns regarding autonomy and individual responsibility—and Bailey's responses to these concerns.
7. Who, according to Bailey, should decide how neuroscientific breakthroughs should be selected and used?

QUESTIONS FOR REASONING AND ANALYSIS

8. How does Bailey organize his argument? What makes this a useful strategy?
9. In addition to categorizing his argument as a claim about values, how else might his argument be classified?