

The rise of cognitive enhancers is a mass social experiment

June 16 2015, by Emma A. Jane And Nicole A Vincent



Medications prescribed for disorders are being used by DIY brain-hackers.
Credit: Pranjali Mahna

Want to sign up for a massive human experiment? Too late. You're already a lab rat. There was no ethics approval or informed consent. You

weren't asked, you never signed up, and now there's no easy way to opt out.

We don't want to be alarmist. We're not suggesting you're about to sprout wings, grow coarse hairs in surprising places and become a gruesome half-insect like the [Brundlefly](#) (the [side effects](#) of real life scientific experiments rarely impress like the special effects in David Cronenberg's film [The Fly](#)).

But we do know not everyone wants to be a human lab rat. And yet we are all currently enrolled in a massive experiment involving cognitive enhancers.

Smart drugs and devices

"Cognitive enhancer" is a broad term for any of a number of different drugs and devices that – depending on which [academic](#) or [gamer](#) you listen to – will sharpen your mind. To get the gist, check out this preview of Neil Burger's film *Limitless*:

But what drugs, what devices? Well, take [this guy](#), for instance, pumping electricity through his brain with a homegrown transcranial direct current stimulation (tDCS) device that emits a current [so small](#) it can run off a nine-volt battery. Or [Elizabeth](#), the 20-something founder of a start-up who takes Adderall – a medication prescribed to treat attention deficit and hyperactivity disorder (ADHD) – except she doesn't have ADHD.

[Ritalin](#), [modafinil](#), and [donepezil](#) are further examples of medications normally prescribed to people with disorders that do-it-yourself brain-hackers are trying to repurpose for cognitive enhancement. And for the less adventurous – those who don't want to nab their grandparent's

dementia pills – there's a growing range of over-the-counter "nootropic" supplements, which enhance memory and other [cognitive capacities](#), available at pharmacies and from online retailers.

A diverse range of people including [video gamers](#), [students](#), [neuroscientists](#), [entrepreneurs](#), [classical musicians](#), and [public servants](#) use cognitive enhancers. We reckon there's a good chance that you too, dear reader, are sampling the options. Or if not you, then perhaps your partner, neighbours, or work colleagues.

Why would anybody want to use cognitive enhancers? To supersize their mental capacities, of course. Depending on the precise method – and the creativity of the given product's marketing department – touted benefits include superior memory, focus, reflexes, calmness, clarity of thought, problem-solving ability, mental stamina, and ability to function well with little sleep.

But here's something to dampen your enthusiasm. In many circumstances, it may be illegal to buy or sell these medications. And some are controlled substances, which is why Elizabeth gets her Adderall – a cocktail of amphetamine salts – from shady dealers.

Health is also a consideration. Aside from isolated studies, buckets of hearsay, and tons of hype, [scientists know little](#) about which of these methods work, how they work, and their potential side effects. Experts are urging restraint, at least until more research is conducted and scientists can say which brain interventions are safe and effective.

But our concern is that by then it will already be too late to extract ourselves from this massive human experiment.

An en masse human experiment

It's around this point that we often encounter scepticism. Unless everyone is actually using cognitive enhancers, how can everyone be part of the experiment?

Here's our thinking: imagine that in time we develop cognitive enhancement methods that are given the tick of clinical approval by the requisite number of citizens in white lab coats. Presumably ordinary people would then start using them because they can. Suddenly it's possible to pop a pill and blitz calculus. Or perk up while transplanting someone's heart and lungs, or while flying people across the Atlantic.

But here's the catch. While cognitive enhancement might feel like a free choice at the start, once everyone round town is doing it, an insidious form of social coercion sets in. Just as the use of [beta blockers](#) has become widespread [in the classical music scene](#), so too cognitive enhancement threatens to become a new "normal", a de facto standard that pressures everyone to bio-hack their brains to keep up.

Obviously we can't divine the future. But predicting the social side effects that safe, effective, and inexpensive cognitive enhancers are likely to have in competitive societies like ours seems like a no-brainer. Our bet is that it will result in an even more work-obsessed culture, and even less time than we currently have for other pursuits that enhance human life.

Remember those predictions from the 1980s about how in the future we would all be working 15-hour weeks thanks to gains in efficiency afforded by technological advances? The reason that never happened is not because the technology failed to deliver those gains in efficiency. It's because we chose to use that efficiency to do more work.

Social side effects

Scientific and technological developments shape our lives – often imperceptibly – by gradually changing our values and the moral, legal, and social landscape in which we live. Lab tests, clinical trials, and epidemiological studies are great for identifying medical side effects – blurred vision, nausea, nasal blockage, and so on – but they completely overlook the social side effects that science and technology can also have.

This is one reason why you don't actually have to use cognitive enhancers to be a subject in this massive human experiment. You just have to share a society with others who do. When they use cognitive enhancers, you get the social side effects.

Then there's informed consent. Would you still want to take a smart drug if it increased the chances of you making not-so-smart decisions about how much you worked simply because you could suddenly work more? What if it changed how much your boss thought it was reasonable to expect you to work given what everyone else around the office was suddenly capable of doing?

Bioethics: convincing as well as cute

For perspective on what's missing in how we talk about cognitive enhancement, consider the stark contrast between debates over enhancing physical and mental performance. The doping of athletes is rejected not just for safety reasons but because we want sport to be about certain things, like those gloriously muscular humans and their inspiring achievements – not a technological and scientific arms race. When it comes to sport, we decide how we want things to be and set rules to ensure that's how things become. Values shape how we conduct ourselves in sport.

And yet, despite the potential impact on the rest of our lives, values

other than safety, effectiveness, and equality are marginalised in debates about mental performance enhancement. Enhancers are likened to caffeine, pain killers or doing the occasional online course to skill up. And people who express a distaste for the kind of society that cognitive enhancement could encourage are ridiculed by enthusiasts as being neo-Luddites.

Take this tweet from a genome researcher, for instance, to our work on the ethical and legal issues around [cognitive enhancement](#):



Daniel MacArthur
@dgmacarthur

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But in our view a cognitively enhanced society is neither inevitable nor

unobjectionable. Our case is that we should engage in careful contemplation of the full suite of ramifications of any given emerging technology not because we think all technological change is bad and must (or can) be stopped, but because we owe it to our future selves. As a society we have a responsibility to do this. To release new drugs and technologies into the world without regard for their potential social consequences is on a par with sending a new medicine into the market without clinical trials. Failure to do this is nothing less than a reckless form of social experimentation.

We would love to keep going with our "cute" bioethical persuasion, but it's time for us to enhance. This will involve stopping work at a reasonable hour, hanging out with our favourite children, pets, and friends, doing the exercise and balanced meal thing, and then attempting (but failing) to get a decent night's sleep.

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