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Drugs, Enhancements, and Rights

Ten Points for Lawmakers to Consider

JAN-CHRISTOPH BUBLITZ

In the past decade, the academic debate over cognitive enhancement (CE) unfolded largely isolated from the notoriously thorny debates about drug policy reform and the successes and failures of the international drug control regime (ICR). In hindsight, this approach proved beneficial. Not engaging with an ideologically saturated debate fueled by public fears afforded steering discussions onto a more rational path and addressing some foundational issues at the intersection of neuroscience, philosophy of mind, and ethics. However, moving from philosophical thought-experiments and speculative future enhancement devices that occupy contemporary academic debates to concrete regulations of those neurotools that exist today, the reality of millions of problematic drug users, addictions to licit and illicit substances and consequential social problems, general issues of health policy, and the existence of a global regulatory system designed to restrict availability of many perilous substances to medical use can no longer be neglected. Drug policies have been extensively dealt with on theoretical, political, legal, and—one should not forget—practical levels. Much of the knowledge of experts and commissions, social or medical workers, and users that informs drug policy has not been tapped and systematically reviewed in the enhancement debate. Unless it provides novel insights rather than arguing for old drugs in new veins, initiating a regulatory debate without taking notice of the century-old drug discourse and without drawing on the manifold experiences to regulate mind-altering tools appears pretentious and futile, not least because amending the regulation of controlled substances is technically a revision of current drug legislation.

The central aim of this chapter is to build bridges between these closely related yet not sufficiently connected discourses, primarily in normative aspects. I shall develop ten points for novel regulatory frameworks that lawmakers should observe. Connecting the debates is timely for two reasons: surveys

indicate that the prevalence of (illicit) use of CEs seems to be on the rise in Western countries.[i] Furthermore, the political consensus that sustained the ICR over the past 50 years has slowly but perhaps irreversibly begun to unravel.[2] At what appears to be a turning point in the war on drugs, novel regulatory frameworks for recreational, enhancement, and other nonmedical uses are urgently needed. Moreover, owing to rapid advances in neuroscience, novel nonpharmacological interventions into minds and brains, such as transcranial magnet stimulation (TMS) and various forms of electric stimulation of the brain through electrodes placed over the scalp (tDCS) or deep inside the brain (DBS) have become available recently. Their use for therapeutic and nontherapeutic purposes has to be regulated soon, especially because tDCS devices that are marketed with the (scientifically not yet validated) claim to enhance vigilance are in many countries freely available without due regulatory oversight.[3,4] Due to wording, the international drug conventions apply only to pharmaceuticals. But from a normative perspective, different regulatory paradigms for various means appear unpersuasive. These novel technologies are—just like familiar pharmaceuticals—direct means to alter electrochemical properties of the brain or, more precisely, influence the electrochemical activity within neurons and the interactions between them. Regulating these interventions faces similar normative and practical problems. The challenge for lawmakers is thus much larger than defining appropriate enhancement uses: to develop a framework encompassing all forms of direct interventions into minds and brains for nonmedical and nonscientific purposes.

The International Control Regime and Its Problems

To begin, let us briefly review the structure and problems of the ICR. Production, distribution, and consumption of psychoactive substances are regulated in various ways and on different levels by international, supranational, and domestic institutions. The overarching ICR is formed by three United Nations drug control conventions that almost every country has ratified.[5–7] The ICR provides the blueprint for and largely shapes the content of domestic regulatory systems. Some substances with potential enhancement effects, such as amphetamines, methylphenidate, or cocaine, as well as classic recreational drugs like cannabis or psychedelics are controlled by the ICR. Whether and to which degree substances are scheduled is decided in a process involving the Commission on Narcotic Drugs (CND) and the World Health Organization (WHO).[ii] The standards for scheduling are laid down in the treaties, primarily comprising two factors: the medical (or scientific) benefits of a substance balanced against its liability for abuse and its harmfulness.[iii] Interestingly, not only the chemical properties of substances and their hazards to individuals are taken into

account, but also and explicitly the "seriousness of public health and social problems" they may cause.

Once a substance is scheduled, states are obliged to ban its use for any other than medical or scientific purposes, details of which depend on the subcategory in which the drug is placed (I–IV).[iv] Although the treaties do not define "medical use," it is clear from context that it is understood synonymously with "therapeutic use" (i.e., measures necessary to cure or alleviate a medically recognized disorder).[v] The treaties thus distinguish between therapeutic and nontherapeutic use. Unofficially, the latter is often indiscriminately termed "recreational use," which includes consumption for leisure as well as enhancement. Many national drug laws mirror the distinction between therapeutic and nontherapeutic use and expand it to other substances not controlled by the ICR. Details vary from one country to the next. In many jurisdictions, it is unclear whether healthy persons can legally obtain a prescription of a noncontrolled substance for overt enhancement use.[vi]

The stated aims of the ICR are to ban use of controlled substances for nonlegitimate purposes without unduly restricting their availability for medical and scientific ones.[vii] Accordingly, the treaty organs have largely focused on the eradication of drug consumption, reflected, for example, in the motto of the UN General Assembly Special Session on Drugs in 1998: "A drug free world—we can do it."[12] In national disputes, the ICR often serves as a justification (or pretense?) for restrictive and punitive policies, quelling reform debates by referring to international obligations. The reasoning behind the prohibitive framework is fairly simple: controlled substances are harmful, and curbing their consumption promotes health and prevents or alleviates social problems.

CURRENT CONTROVERSIES: WAR ON DRUGS

The strategy to eliminate illicit use consists in targeting both supply and demand. Most national drug policies rest on four pillars: prevention of consumption (through public awareness and deterrence), therapy (often aiming at abstinence), reduction of further harms to individual and society (such as blood-borne diseases), and repression (destruction of crops, criminal prosecution, incarceration), with varying emphasis by each country. In the past decade, the repressive side has come under fierce criticism. In the eyes of many, the War on Drugs that Richard Nixon declared in 1971 has failed. More than 40 years later, hundreds of millions of people illicitly consume drugs, and, despite their worldwide ban, substances are almost universally available. A drug-free world is not even a distant glimmer on the horizon. Critics persuasively point out that repressive state actions have caused massive harms in terms of health, welfare, and human rights violations.[12–15] The War on Drugs has always been a war against people, against anyone who stands in some relation to drugs in

the long chain from their production, often in developing countries, to their consumption, mostly in rich Western states. Some countries still impose the death penalty, inhumane labor camps, or torturous rehab programs for drug-related offences; others have witnessed mass incarceration with roughly every fourth criminal conviction stemming from drug-related offences. Enforcement of anti-drug laws and human rights have been described as "two parallel universes" because many drug users are deprived of rights and withheld necessary medical care.[16] This situation even prompted the UN High Commissioner on Human Rights to remind governments of their obligations toward "individuals who use drugs" who "do not forfeit their human rights."[17] In producing as well as consuming countries, drug-related crime and social and ecological problems have proliferated. Out of governmental control, drug markets are in the hands of criminal organizations that destabilize the rule of law and democratic institutions in entire regions, from Latin America and Mexico to Afghanistan. These facts give rise to the suspicion that the War on Drugs may have caused more harm than it averts. Whether it truly has failed primarily depends on the precise conditions of success or failure, which have unfortunately never been fully formulated. In the absence of objective yardsticks, the failure of one strategy can only be declared if a different one has proved more successful. But as alternative regimes have never been tested, not least because of the ICR's global reach, advocates of a hard stance can still respond by claiming that without the war on drugs, prevalence and drug-related problems would be much higher. Unable to compare the present to a counterfactual state of the world, one should resist drawing sweeping conclusions.

Nonetheless, the persistence of production, consumption, and consequential social problems allows politicians, nongovernmental organizations, and the concerned public contemplate novel strategies. Most likely, they require replacing the priority of prevalence reduction with harm reduction. The harm reduction paradigm has emerged as the central topic in drug policy since the outbreak of HIV/AIDS, but is still not the unanimously accepted default position. In fact, only a few countries strictly orient their policies in its light, and the position of the UN is inconsistent and varies between agencies.[18] Harm reduction considers nonmedical drug use as a perhaps undesirable yet unavoidable social phenomenon that ought to be addressed with the aim of reducing costs to both the individual consumer and society at large. Rather than curbing consumption, policies should primarily aim at minimizing drug-related risks.[viii] Practical examples range from needle exchange and medically supervised injection facilities to drug-checking services or heroin on prescription, measures that prevent the transmission of communicable diseases and overdoses and effectively save lives. In spite of such promising prospects, many states are reluctant to make even moderate concessions to drug consumers and to offer assistance beyond medically supervised abstinence programs because

they consider any form of support as aiding and abetting drug use. Harm reduction implies accepting and managing the social reality of drug consumption, whereas the ICR and national policies seem sternly committed to eradicate it.

One source of the regime's current crises thus lies in its conflicting objectives: reducing prevalence or counteracting health and social problems? Evidently, the former is understood as a means to the latter, yet some health and social problems are best averted if drug use is accepted and accompanied by supportive measures rather than criminalized. The preambles of the conventions state that the parties are "concerned with the health and welfare of mankind." However, these objectives are not straightforwardly pursued in the following articles of the treaties nor in the practical work of the ICR, predominantly concerned with "combating the evil" of drug use.[ix] One cannot but get the impression that the ICR has confounded means with ends. Whoever opposes drug use in the name of public health—or even "human welfare"—might have to embrace harm reduction or welfare promotion rather than repression and prevalence reduction. The tension between these objectives, barely visible on first glance, lies at the root of many controversies over drug policies.

Unfortunately, the ICR has proved inflexible and unreceptive even of modest reform proposals, aptly demonstrated in the recent controversy over Bolivia's quest to exempt the local custom of chewing unprocessed coca-leaf from international control.[x] Even the often praised Dutch coffeeshop model verges on treaty violation and is possible only with the paradoxical situation that possession, use, and purchase of small amounts of cannabis in designated shops are de facto tolerated, whereas growing and selling remain punishable offenses (the so-called backdoor problem). Other dissatisfied European countries, such as Spain and Portugal, push the treaty limits by pursuing their own pragmatic ways of de facto decriminalization. In 2014, Uruguay became the first country to openly defy the ICR and to fully legalize the production and consumption of cannabis. Despite the *prima facie* reasonableness of experiments with cannabis legalization that even some US states have realized, the outspoken and influential International Narcotic Control Board (INCB) that monitors treaty compliance meets reforms with resistance, regularly condemning states for novel or experiential approaches, including harm reduction programs such as injection rooms.[xi] The INCB still faithfully believes in the tenet of a drug-free world.[xii] Its mandate can only be changed by reforming the ICR. This option, however, requires strenuous diplomatic efforts and agreements between more than a hundred nations with diverging economic interests, drug-related problems, cultural traditions, and geopolitical agendas. Thus, treaty reform seems politically almost inconceivable at the moment. Yet, the long-term survival of the ICR in its present form appears equally unlikely—future developments are hard to project.[24–26]

The present problems and the hesitance to embrace harm reduction provide for an important lesson: regulatory systems are no ends in themselves. They are a system of rules designed to achieve objectives, and these objectives and their relation to each other have to be clearly specified: what is the ultimate aim of drug control—promotion of "health and welfare of mankind" or reduction of prevalence? Objectives have to be observed on all levels of implementation (e.g., law enforcement), otherwise means and ends are easily confounded. The consequences of regulation, achievements as well as failures and unintended harms, have to be evaluated in light of these objectives, preferably by previously defined standards. Furthermore, the unfortunate current situation is partly caused by regime inflexibility that leads to a stalemate. Without treaty revision, the ICR is factually cast in stone, and the international monitoring bodies that have some latitude for treaty reinterpretation and policy reform are not politically accountable for the outcomes of prohibition. National lawmakers, by contrast, who have to deal with consequential harms of drug policies and often enjoy popular support to reform them, do not possess sufficient leeway for policy experiments. A system more sensitive to social and political developments and allowing for local adjustments seems preferable.

FURTHER CRITICISMS

With a view on future policies, it is useful to rehearse two further criticisms commonly leveled against the ICR. For one, scheduling and classification of substances appear incoherent. To many scientists and users, it remains unintelligible why lethal substances such as tobacco and alcohol are more easily accessible than, for example, cannabis. As a general legal principle, restrictions have to stand in a proportionate relation to the hazards of the object of regulation. A group around the British psychiatrist David Nutt has submitted a proposal to assess harms objectively on a multicriteria harm scale, with the perhaps unsurprising but nevertheless remarkable result that current classifications are incoherent and do not correspond to experts rating of harmfulness.[27,28] Although one may argue about the criteria of their harm scale,[29–31] the underlying normative point should be beyond dispute: unfounded and arbitrary distinctions between substances not based on empirical research but on dubious preconceptions and prejudices cannot be justified and undermine the persuasiveness of the entire control regime. Moreover, as science progresses, substances should be reassessed. But many substances have never been reviewed since their initial scheduling decades ago.[32]

Second, the ICR does not fully appreciate that the great majority of illicit drug users are moderate users, not suffering from serious health problems. A minority of problematic users causes the bulk of drug-related problems, mainly because of the particular substances they consume, their consumption

patterns, and individual vulnerabilities as well as socioeconomic conditions. On the one hand, any regulatory model has to be formulated in abstract and general terms and thus has to disregard individual circumstances to some extent. On the other, a regulatory model that is in principle unable to draw finer distinctions than across-the-board prohibitions forfeits the idea of providing adequate solutions for concrete cases. A more nuanced approach that affords differentiations is thus desirable.

CASE EXAMPLE: THE SWISS CUBE MODEL

A prime example that drug policies can incorporate such considerations is the Swiss Cube model, developed by the Swiss Federal Commission for Drug Issues.[33] It is a guide to appropriate state measures in regard to different substances and consumption patterns. The model comprises all psychoactive substances including alcohol and prescription drugs. Also, it differentiates between three types of consumption patterns: "low-risk use," "problematic us,e" and "dependence." It has four sets of policy options: "protection and promotion of health," "therapeutic options," "harm reduction," and "control of the market." Policy and state actions can be fine-tuned according to each category. For instance, low-risk use of a comparably harmless substance might be best addressed by measures of the "protection and promotion of health" and "market control" categories (e.g., informing consumers and licensed distribution), whereas dependence to more harmful substances calls for "harm reduction" and "therapeutic options." Of course, the model is descriptive and cannot by itself provide the objectives of drug policies, but it serves to identify incoherencies in and priorities of policies and forms the basis for a more fine-grained system with different responses to different situations. Policy makers are well-advised to consult the Swiss Cube model.

How the CE Debate May Change Drug Discourse

To date, the CE debate has not had much impact on drug reform debates. However, it possesses the potential to shift the discourse in various ways. The ICR rests on the distinction between medical/therapeutic and nonmedical use, with the latter commonly understood as "recreational." But enhancement (altering capabilities without therapeutic ends to improve them beyond normal functioning) does not easily fit in this dichotomy, one marked by therapeutic necessity on the one hand and what appears as hedonistic lifestyle choice on the other side. For one, enhancement may become a part of medicine proper in the same way as nontherapeutic medical interventions for aesthetic purposes already have. Moreover, rather than recreational, a way to "tune-in and

drop-out" (Timothy Leary), enhancements appear to many as an option to cope with increasing demands in social and economic life. In terms of purpose, enhancement seems to constitute a third category.

At any rate, the ICR's distinction implicitly relies on the one between therapy and enhancement. The tenability of this distinction has been called into question because many authors consider the categories of illness and health and, correspondingly, of treatment and enhancement as somewhat arbitrary cutoffs in a continuum of mental capacities and properties. Some support for this claim can be found in the fact that the range of mental disorders steadily expands with every novel psychiatric diagnostic manual, up to a point at which ordinary life experiences such as grief and shyness become pathological disorders. But even though this criticism of overpathologization has some merits, one should recall that any normative distinction is hampered by a residue of arbitrariness. As long as prototypical examples of healthy and ill persons can be discerned, a difference between both exists wherever borders precisely run. However, the permeability of the distinction causes problems for the legitimacy of the ICR because it ties very different legal consequences to each side. It calls on states to provide access for medical use and, simultaneously, to mobilize its repressive apparatus to prevent and prosecute consumption for other purposes. This great discrepancy in state actions ultimately hinges on the thin and evolving line between therapy and enhancement and appears unpersuasive in gray areas. For instance, persons who consume controlled substances for (unsupervised) self-medication or to alleviate everyday nuisances such as stress, sleep deprivation, fatigue, or mild cognitive decline are not considered ill in a medical-pathological sense. Their use thus constitutes enhancement. Yet, a categorical denial of the permissibility of these uses, or even its criminalization, does not seem warranted. At the very least, the enhancement debate prompts us to reconsider those categorical cutoffs between licit and illicit use.

But the impetus of the enhancement debate reaches beyond cases in the gray area between normalcy and illness. In short, the ICR is based on a risk–benefit assessment in which the only benefits eligible for consideration are those of therapeutic or scientific value. However, millions of people use drugs in order to experience other effects that they presumably consider beneficial. The ICR a priori excludes these benefits from further evaluation. How can this ignorance be justified? Conventions and commentaries remain remarkably silent on this issue. Apparently, the entire ICR is founded on the premise that risks of controlled substances always outweigh benefits. This contention might be explained by several reasons: for one, drug legislation in general seems ignorant of the interests and motives of users who are mostly either characterized as weak-willed addicts or demonized as threats to society. The idea that many of them are reasonable autonomous persons has not found much resonance, so that benefits, as conceived by them, are discounted. Moreover, the ICR appears

to maintain a sometimes exaggerated view on addiction. Its historical origins lie in the Opium Conventions, and, until today, drug debates are often set against the backdrop of highly addictive substances such as heroin (Europe), crack, or methamphetamine (United States). Surely, the often miserable state of users of those substances may not be justified by whatever benefit they perceive. However, not all controlled substances lead to this form of dependence, and the poor conditions of users are not only due to the intrinsic properties of drugs but exacerbated by social circumstances, partly generated by the prohibitive regime.[34] Finally—and without trivializing addiction—the concept and its policy implications are much more complex than the conventions suggest.[35–37]

An unspecified risk of addiction might by itself not necessarily warrant the categorical dismissal of nonmedical benefits. Without engaging and evaluating benefits in detail, the premise that such benefits are always outweighed by risks is merely an assumption. In classic recreational use, benefits often consist in pleasurable experience. Even if one were to discount drug-induced pleasure as "false" and "illusory," its exclusion by a system "concerned with the welfare of mankind" is not only philosophically remarkable. Even more perplexing, in the logic of prohibition, the pleasure-inducing properties of a substance count in favor of its ban insofar as they increase the likelihood of "abuse" (i.e., repeated nonmedical use).[38] Apart from attaining pleasure, the enhancement debate has highlighted many nontherapeutic effects *prima facie* beneficial for both the individual and society, from improving cognitive capacities and altering one's personality structure in the quest of self-creation to strengthening moral dispositions. Not unlikely, some of these benefits may outweigh risks. Whoever contends the contrary, *pace* consumers, has at least to provide a framework and criteria by which these questions can be evaluated. The absence of such and the silence of the ICR on these matters is notable given the harsh consequences it stipulates for disobedience.

COGNITIVE LIBERTY AND THE RIGHT TO TAKE DRUGS

Surely, developing a framework to assess risks and benefits beyond medical usefulness is fraught with difficulties: how to compare effects in supposedly incommensurable domains—health versus pleasure, longevity versus richness of experience, emotional dullness versus self-control or improved cognition? Who makes these decisions and by which standards—subjective, objective? This leads to a more general point: should substances be exclusively evaluated by an objective risk–benefit model at all? Risk–benefit assessments are, in the end, arguments from utility. A policy is right then if, all things considered, the objective benefits prevail over risks. However, such an exclusive risk–benefit assessment might not be the appropriate normative standard. Potential consumers may have a legal right to use drugs for nonmedical purposes, and

this right is not based on—or may trump—considerations of utility. In other words, even if it turned out that strict prohibition were indeed the best way to reduce overall drug-related harm, persons might nonetheless be entitled to use drugs.[39] Their right could override an objective risk–benefit assessment.

But is there a right to enhance oneself? Legal scholars have advanced the notion of cognitive liberty as every person's right to self-determine what is in and on her mind, to configure one's own mental system[40–44] (philosophical views[34,45,46]). Cognitive liberty entails the permission to use mind-altering tools. At the moment, most national and international legal systems do not recognize such a right, but strong theoretical reasons speak in its favor. Its foundations lie in the classic liberal democratic idea that people should be free to decide for themselves in self-regarding matters—autonomy. Whereas autonomy is often primarily understood in relation of a person to her body, there are no intrinsic reasons why it should be confined to bodily matters. Mental autonomy is the logical expansion of any form of autonomy.

In legal theory, some currently ill-defined rights pertain to mental autonomy: freedom of thought (a universal human right) and the right of a person to herself, the original right of every person in classic Enlightenment reasoning and its modern formulations in the right to privacy or personality.[47] More abstractly, the idea that governments should not have the power to control the minds of citizens is deeply entrenched in constitutional theory, albeit the suggestion that controlling tools to alter minds could amount to controlling minds has not yet been fully explicated. At any rate, the strong position of autonomy in the architecture of fundamental rights and duties can hardly be denied, and at least *prima facie* autonomy encompasses the use of neurotools. It implies that persons can define for themselves what is good and valuable to pursue. By allocating the power to make decisions over mental alterations in the hands of affected persons, they are bound to evaluate risks and benefit for themselves and according to their own standards.

Surely, autonomy is not limitless. States can limit liberties to prevent harm to others and to foster social goals. Furthermore, most legal systems confer on governments the power to curb individual freedoms for paternalistic aims (i.e., for the good of the affected individual herself). The extent of permissible paternalism, especially whether it can justify punitive sanctions against those whose welfare it portends to protect, and its deeper justification are controversial issues not to be pursued further here.[48,49] Assuming the permissibility of paternalism in principle, the protection of mental capacities required for informed decisions and the prevention of mental harms or debilitating addictions are prime candidates for legitimate governmental intrusions into user's freedoms.

But even if one concedes that states can restrict cognitive liberty and therewith the use of neurotools, the structure of the overall argument changes profoundly. Restrictions of human rights require justification, whereas the

ICR takes the legitimacy of its prohibitive stance for granted. The ICR often appears unwilling to self-critically engage with human rights concerns and is strikingly ignorant of the autonomy of drug users. This may even cast doubts on its compatibility with international law. UN agencies are bound by human rights, as guaranteed in the Universal Declaration and the Covenant on Civil and Political Rights, and international treaties such as the drug conventions have to be interpreted in their light.[12,25,50]

In a rights-based approach, public health—which is currently considered the paramount value and ultimate goal of drug policy behind which other interests of users have to step back—would have to be supplemented with and to some extent replaced by the human rights of users, primarily cognitive liberty. Instead of "combating the evil of drug use" by sometimes quasi-military means, states would have to respect people's right to mental autonomy and curb it, if necessary, in the least restrictive manner.[51] Any restriction needs to be justified taking all (perceived) benefits of drug use into consideration and be grounded in sound empirical data. The enhancement debate has demonstrated that many classic anti-drug considerations might not apply to every instance of voluntary mind transformation so that it is anything but self-evident that across-the-board prohibitions could be justified under a rights-based approach. At any rate, rather than being the rule, criminalizing people because they seek to alter their minds would be possible only, if at all, in exceptional circumstances.

Furthermore, the problem of lacking differentiations between problematic and less problematic users resurfaces. Whereas the rights of the former may be curtailed for paternalistic reasons, it needs to be argued why the liberties of the latter should be equally infringed. At least, it has to be recognized that restricting the liberties of millions of people for reasons that only apply to a subset of them is deeply problematic. Regulatory systems should thus aim to incorporate the idea of the Swiss model to draw distinctions between problematic users and consumption patterns and those who merely expose themselves to risks that never realize. The latter is a legitimate exercise of personal autonomy. Such an approach requires taking individual health, genetic dispositions, and other vulnerabilities as well as social factors into consideration. In practice, this seems achievable only through a model involving prescription by a psychiatrist or equivalently trained professional.

THE RIGHT TO REFUSE ENHANCEMENT AND THE DOPING ANALOGY

Because its overarching idea is self-determination, cognitive liberty implies the permission to use but, by the same token, to refuse mind-altering tools. It

opposes any mandatory use of psychoactive substances—be it for therapeutic or enhancement purposes. Before the enhancement debate, a right to abstain from drug use was barely worth mentioning.[xiii] However, it may likely become a key consideration in coming regulations of neurotools. Therefore the idea of cognitive liberty can and should be embraced not only by transhumanists and drug liberals, but also by bioconservatives who often ground their case against enhancement on the perils of a society in which drug use becomes an uncritically accepted part of daily life.[42] Even if individuals are not coerced in a strict sense and retain the formal power to reject enhancing themselves, the idea of cognitive liberty may be more demanding and include freedom from societal and economic forces or soft coercive influences on people to alter their minds.[xiv]

It does not take a clairvoyant to predict that liberal regulatory schemes will cause a widespread use of enhancements, especially in competitive fields such as job markets in a economy of knowledge. Artists and writers, software programmers, academics, freelancers, and CEOs will be tempted to resort to performance-enhancing tools, first to meet urgent deadlines and then, perhaps, to cope with informational overload and increasing demands of the job market. At this point, the often invoked analogy of enhancement and doping in sports comes into play. Proponents of enhancement argue that athletics is sufficiently dissimilar to other parts of social life. In many aspects, their diagnosis is correct: sport is competition for its own sake, the achievement of arbitrary goals (to run so many meters jumping over hurdles, to put an object into another object only touching it with the feet, etc.). The rules of sport seek to preserve and promote the spirit of sport and specific notions of fairness that form the basis of the sport's immanent aim of constructing winners and losers. Doping potentially undermines the very endeavor of competitive sports. With doping, we may "win races, but lose racing."[xv] Because of its peculiarities, the rules of sports and its understanding of fairness and competition might—and should—not be those by which other domains of social life are governed. As a consequence, anti-doping arguments cannot be transferred to other fields by simple analogy.

Nevertheless, doping regulations provide a persuasive answer to a structural challenge for autonomy in competitive fields where the decisions of some actors pressure others into following their lead. Once enhanced persons outperform abstainers, win the pitches and get the jobs, the latter are very likely confronted with the dilemma of either giving in to enhancement or taking negative social and economic consequences upon themselves. To abstainers, a merely formal guarantee of autonomy might not be worth much in face of strong factual forces. The objective of doping regulations is best conceived as the protection of athletes against competitive forces to expose themselves to risks above a certain threshold. The same reasoning applies to mind-doping. So whereas cognitive liberty entails the right to enhance, it equally entails the right to refrain from enhancing. Whoever appeals to cognitive liberty to argue

for her right to use drugs cannot, on pain of self-contradiction, deny others the right to refuse so.[xvi]

This conflict between the interests expressed in rights *to* and *against* enhancements cannot be resolved by simply favoring one side over the other. Countervailing interests have to be carefully reconciled by developing an objective threshold of what one may call "legitimate socially acceptable risks." Health concerns are among the most important, but by no means exclusive, considerations. Here is an analogy with today's most widespread enhancer—coffee: although its consumption increases vigilance and may thus provide a competitive edge, the idea of banning coffee from offices to protect non–coffee drinkers appears absurd. Apart from established cultural praxis, the main reason is that the negative effects of coffee are considered socially acceptable risks. The same might not be true for many pharmaceutical enhancers. Whereas no one can seriously expect and demand to live in a risk-free world, citizens are entitled to a societal risk management that demarcates the realm of acceptable risks and seeks to minimize all the others. The right to refuse enhancements therefore gains momentum and outweighs the right to their use if—and arguably only if—the particular substance or device entails risks above a threshold of socially acceptable risks. Where the borders of the realm of acceptable risks precisely run has to be defined by democratic legislators. They should roughly correspond to the regulation of other perils of life, from nuclear power plants and car traffic to extreme sports.

The doping analogy calls for a two-step regulatory system that differentiates between competitive and noncompetitive use. Competitive contexts in which individuals who prefer to abstain are pressured into using enhancements have to be regulated more tightly. This supposedly necessitates gatekeepers and, as a means of last resort, banning those neurotools that exceed a threshold of socially acceptable risks from competitive domains. Bans would, of course, raise a host of practical problems much more intricate than anti-doping laws. How to ensure that, for example, academics or self-employed businessmen refrain from using enhancements? Here, the creativity of regulators—and of society—is put to the test. In academia, where regulatory issues are often solved by relying on credibility and reputation of researchers, soft measure such as codes of conducts or self-commitments could be introduced.[53]

Ten Points for Lawmakers to Consider

The enhancement debate has seriously challenged the normative foundations on which the entire prohibitive framework of the ICR rests: the treatment/enhancement distinction, the principled ignorance of nonmedical benefits of drug use, and its exclusive concern with health rather than human rights. Once

health as the only legitimate aim of drug policy is supplemented with the idea of cognitive liberty, new problems and complexities such as social pressure in competitive contexts emerge. Many more questions need to be answered. Whether states should encourage or discourage enhancements and the objectives of drug policies ultimately depends on value judgments, in the absence of which concrete policy proposals are premature and tend to put the cart before the horse. Nonetheless, the foregoing affords to formulate some standards for novel regulatory frameworks:

1. Although self-evident, the reluctance of the ICR to promote harm reduction strategies and its adverse consequences on health and welfare prove that any regulatory system must pursue clearly stated objectives that are recognized at every level of implementation.
2. Any novel regulatory framework should seek to overcome today's piecemeal approach by setting coherent parameters for the use of all means to directly intervene into minds and brains, from pharmaceuticals to magnetic or electrical brain stimulation.
3. Risk profiles have to be specified for each neurotool and for different use patterns based on empirical findings of risks and benefits and according to an objective harm scale. Assessments should be reviewed in due course. To enable informed decisions by individuals or legislators, governmental bodies should insist on transparency in pharmaceutical trials and possibly fund non–industry sponsored research.
4. Human rights must be the central principle to guide regulations: the main objective of drug policy must consist in their protection and enforcement. The exclusive focus on public health must therefore be supplemented by—and possibly yield to—the human rights of users not only with respect to issues in the enforcement of anti-drug laws but also in regard to access to neurotools. The yet to be fully accepted human right to cognitive liberty entails the *prima facie* permission to use as well as to refuse neurotools.
5. Consequently, the therapeutic value of neurotools cannot be the only applicable criterion in risk–benefit assessments. Instead, regulatory models must be sensitive to account for those effects that users deem beneficial, from attaining pleasure to improved cognitive capacities.
6. Thresholds for permissible/impermissible harms should be uniform for all neurotools and correspond to thresholds of acceptable self-harm in other fields (e.g., risky sport activities).
7. Depending on the permissible degree of paternalism, protection of health and prevention of dependence are legitimate aims to limit cognitive liberty. However, restrictive measures must demonstrably promote these goals and have to be superior to other approaches. Harm reduction strategies from syringe exchange and injection rooms to drug checking should be adopted.

8. Because states are obliged to restrict liberties only in the least invasive manner, regulatory models should avoid across-the-board prohibitions that disregard individual (health) dispositions or consumption patterns and develop more fine-grained systems suited to incorporate difference among users and use patterns. This likely requires a prescription model.
9. To ensure the right to alter one's mind, states should not set insurmountable hurdles to access to neurotools in addition to those required by considerations of safety or the rights of others.
10. To ensure the right to refrain from using neurotools, social pressure on abstainers in the form of incentives to induce or persuade them to using neurotools should be minimized. To reconcile the rights of potential users and nonusers, different regulations for typically competitive and noncompetitive domains of social life have to be devised. Neurotools typically utilized to enhance performance in competitive fields have to be regulated more strictly if they create risks that abstainers cannot be legitimately expected to bear. Neurotools unsuitable to enhance performance in competitive fields (recreational drugs in a more literal sense) may not have to observe these additional limits.

Policy proposals should be tested against these ten points. Although they might appear unfamiliar, most of them are, at least from a theoretical view, hardly controversial. They follow from general legal principles that presumably roughly apply to many jurisdiction and form the outer structure of a reasonable rights-based regulation. The rest is politics. Further argument and eventually value decisions by legislators are required with regard to the strength or weight of the right to cognitive liberty, the degree of permissible paternalism, and thresholds for socially acceptable risks. The most challenging factual demands on regulatory systems are the separation of competitive and noncompetitive purposes as well as a proper recognition of individual dispositions. Within the confines of these parameters, lawmakers have leeway to calibrate regulations according to further aims and public interests through measures such as eligibility requirements, consumption under supervision, regular health checks, taxation, and further preventive or repressive measures.[xvii]

Brief Assessment of Current and Proposed Regulation

To conclude, let us briefly evaluate one example of current regulation, as well as Veljko Dubljević's recent proposals for a reform of the regulation of methylphenidate in light of these ten points. First, the strict control of one class of neurotools stands out as particularly questionable: psychedelics (e.g., LSD,

psilocybin). Following the strict and partly politically motivated scheduling of psychedelics in the 1970s, research and psychotherapeutic use of psychedelics halted for decades. A couple of pilot studies in the past decade have renewed the clinical interest in psychedelics.[56,57] According to users and experts, these substances afford intriguing experiences, profound and yet illuminative transformations of consciousness with sometimes long-lasting positive effects.[xviii] Users report that they were able to gain insight into subconscious thoughts and emotions, a clearer view on themselves, dissolution of ego boundaries, and an understanding of the working mechanisms of cognitive processes such as perception. In a recent study on psilocybin, more than half of the participants considered the psychedelic trip as one of the five most meaningful experiences of their lives.[57,58] Provided these reports are correct, the legally interesting point is that these effects are not recognized in regulation (apart from their potential value for therapy). But how can a regulatory regime deny persons such "profound and meaningful experiences" and outlaw tools that appear valuable for self-development under most conceptions of a good life that incorporate the ancient Greek imperative to "know yourself?" And without even acknowledging a need to justify such a deprivation? Although not free from dangers, the risk profile of psychedelics appears comparably low. They are not dependence-producing, and side effects mainly involve short-lived negative experience while under the influence ("bad trip").[59] A recent population study in the United States concluded that psychedelics do not seem to be "an independent risk factor for mental health problems."[60] However, case and anecdotal reports indicate that vulnerable persons might develop psychiatric symptoms such as psychosis or anxiety disorders, so more research is necessary. To err on the side of caution, measures to minimize risks such as instruction classes, psychiatric screening, and supervision by a trained "trip-sitter" could be developed. Because they are not performance-enhancing, psychedelics are unsuitable to generate competitive pressure on nonusers. A strict ban of psychedelics can thus hardly be justified in light of the idea of cognitive liberty (again, assuming the empirical effects can be validated).

Second, Dubljević has recently forwarded a proposal for reforming the regulation of methylphenidate (Ritalin) and amphetamines (Adderall).[61] He recommends lifting the strict control of methylphenidate in extended, slow-release (SR) form but disincentivising its use through taxation and safety requirements. The prohibition of amphetamines should be upheld. Dubljević argues that the risks of Ritalin-SR are comparably low, whereas amphetamines are the most widely abused drug in Europe. His proposal deserves credit for being among the first to explicitly address the enhancement use of controlled substances, and I concur with large parts of his argument. However, it does not explain why states should discourage the use of methylphenidate. The basic objective of regulation remains unspecified or unsupported by argument.

Nor does it suggest a standard of permissible paternalism, and it relies on a comparison among the risk profiles of Ritalin, Adderall, and other drugs. This approach is understandable but bypasses the crucial question about permissible degrees of self-harm that no regulatory model can leave unanswered. Moreover, because methylphenidate is the paradigmatic candidate of a performance enhancer in competitive contexts, it remains to be shown that its negative mental effects are of a kind that everyone can be reasonably expected to accept. Reports of detrimental effects on emotion, if correct, might suggest the contrary, particularly because enhancement effects in healthy adults are not (yet) proved.[62,63] At the moment, taking methylphenidate for enhancement purposes is experimental. Amphetamines, by contrast, are often used recreationally (outside of competitive contexts), so a blanket prohibition comprising nonrisk users and consumption patterns needs to be justified. A less restrictive prescription model might avert imminent health dangers through medical supervision and quality control of substances without unreasonably impinging on the right to cognitive liberty.

Notes

i. A number from Germany: 12-month prevalence among university studies was 20% in a recent study.[1]
ii. The Single Convention and the Psychotropic Convention stipulate slightly different procedures.[8]
iii. Article 2 Nr. 4 Psychotropic Convention: "If the WHO finds that (a) the substance has the capacity to produce (i) (1) a state of dependence, and (2) central nervous system stimulation or depression, resulting in hallucinations or disturbances in motor function or thinking or behaviour or perception or mood, or (ii) similar abuse and similar ill effects as a [other controlled] substance . . ., and (b) that there is sufficient evidence that the substance is being or is likely to be abused so as to constitute *a public health and social problem* warranting the placing of the substance under international control, [the WHO shall provide an assessment] including the extent or likelihood of abuse, the degree of seriousness of the public health and social problem and the degree of usefulness of the substance in *medical therapy*" (emphasis added).
iv. Scientific purposes shall be left out of the following, not without noting that strict scheduling poses severe obstacles to research (cf. Nutt, King, and Nichols[9]).
v. Treaties and commentaries speak of "usefulness in medical *therapy*." For the Single Convention see United Nations[10: 85] and Chatterjee.[11: 284, 470]
vi. A parallel case is Viagra: In some countries, it is freely available over the counter whereas it requires prescription for therapeutic purposes in others.
vii. Preamble to the Single Convention,[5] also see Chatterjee.[11:351, 456]
viii. There is no fixed definition of harm reduction; instead, there is a set of shared beliefs as well as different opinions, particularly on its (value-neutral) stance toward drug use.[19–21]
ix. Cf. Preamble to the Single Convention.[5]
x. Instead of granting an exemption (which the treaties arguably allow), the adamant control regime let Bolivia renounce the treaties. Some countries even attempted to preclude its subsequent reaccession with qualifications.[22]
xi. For more on the (unfortunate) role of the INCB, see Bewley-Taylor.[2: ch. 5]

xii. Signs of a new way of thinking in the UN Office on Drugs and Crime can be found in the statement of its executive director, Yury Fedotov[23: 50]: "It is important to reaffirm the original spirit of the conventions, focusing on health. The conventions are not about waging a 'war on drugs' but about protecting the 'health and welfare of mankind.' They cannot be interpreted as a justification—much less a requirement—for a prohibitionist regime."

xiii. Such a right against the mandatory use of mind-altering tools has been argued with respect to coerced psychiatric treatments of mentally disordered patients and treatment of drug dependence, two issues left aside here.

xiv. The extent to which states have positive obligations to optimize the interests that stand behind fundamental rights is a complex legal theoretical topic that cannot be addressed here. Suffice it to say that under many ideas of fundamental rights, states are obliged to create social conditions in which right-holders are not pressured into accepting setbacks to their protected interests. The pertinent analogy here is working conditions detrimental to bodily health. Although workers are not strictly compelled to accept jobs under such conditions and thus expose themselves to risks voluntarily in a legal-formal sense, the state may well have an obligation to regulate working conditions to attenuate respective risks.

xv. This phrase is borrowed from McKibben, quoted in Merkel's discussion of the distinction between what he usefully calls output- and engagement-oriented activities.[52: 344]

xvi. A fuller exposition of the logical relations between a right to enhance and a right to refuse enhancements can be found in Bublitz.[42]

xvii. The case of tobacco is instructive: through soft measures, ban in public places (harm to others), and taxation, many European states have successfully reduced smoking.

xviii. Cf., e.g., the writings of LSD's inventor, Albert Hofmann[54] or of the recently deceased experimental chemist Alexander Shulgin.[55]

References

1. Dietz P, Striegel H, Franke AG, Lieb K, Simon P, Ulrich R. Randomized response estimates for the 12-month prevalence of cognitive-enhancing drug use in university students. *Pharmacotherapy*. 2013;33(1):44–50.
2. Bewley-Taylor DR. *International Drug Control: Consensus Fractured*. Cambridge, New York: Cambridge University Press; 2012.
3. Maslen H, Douglas T, Cohen Kadosh R, Levy N, Savulescu J. The regulation of cognitive enhancement devices: Extending the medical model. *J Law Biosci*. 2014;1(1):68–93.
4. Fitz NS, Reiner PB. The challenge of crafting policy for do-it-yourself brain stimulation. *Journal of Medical Ethics*. 2013; doi:10.1136/medethics-2013-101458.
5. United Nations. *Single Convention on Narcotic Drugs*. 1961 (amended in 1972). Available at: www.unodc.org/pdf/convention_1961_en.pdf.
6. United Nations. *Convention on Psychotropic Substances*. Vienna, 1971. Available at: www.unodc.org/pdf/convention_1971_en.pdf.
7. United Nations. *Convention Against Illicit Traffic in Narcotic Drugs and Psychotropic Substances*. 1988. Available at: www.unodc.org/unodc/en/treaties/illicit-trafficking.html.
8. World Health Organization. *Guidance on the WHO Review of Psychoactive Substances for International Control*. Geneva: WHO; 2010.
9. Nutt DJ, King LA, Nichols DE. Effects of schedule I drug laws on neuroscience research and treatment innovation. *Nat Rev Neurosci*. 2013;14:577–585.
10. United Nations. *Commentary on the Single Convention on Narcotic Drugs*. New York: Author; 1973.
11. Chatterjee SK. *Legal Aspects of International Drug Control*. The Hague: Nijhoff; 1981.
12. Barrett D, Nowak M. The United Nations and drug policy: Towards a human rights-based approach. In: Koufa K, Constantinides A, Zaïkos N. eds, *The Diversity of International Law*. Leiden, Germany: Nijhoff; 2009:449–478.

13. Global Commission on Drug Policy. *War on Drugs*: Open Society Institute; 2011. Available at: http://www.globalcommissionondrugs.org/. Accessed on March 6, 2014.
14. Room R, Reuter, P. How well do international drug conventions protect public health? *The Lancet*. 2012;379(9810):84–91.
15. Count the Costs. *The Alternative World Drug Report: Counting the Costs of the War on Drugs*. 2012. Available at: http://www.countthecosts.org. Accessed on March 6, 2014.
16. Hunt P. *Human Rights Health and Harm Reduction: States' Amnesia and Parallel Universes*. Keynote address at the Harm Reduction Conference, Barcelona, 2008.
17. Pillay N. UNHCHR Press Release: High Commissioner calls for focus on human rights and harm reduction in international drug policy. Geneva: United Nations; 2009.
18. Bewley-Taylor DR. Emerging policy contradictions between the United Nations drug control system and the core values of the United Nations. *Int J Drug Policy*. 2005;16(6):423–431.
19. Lenton S, Single E. The definition of harm reduction. *Drug Alc Rev*. 1998;(17):213–220.
20. Carter A, Miller P, Hall, W. The ethics of harm reduction. In: Riley D, Pates R, eds. *Harm Reduction in Substance Use and High-Risk Behaviour*. Chichester, UK: Wiley; 2012:111–123.
21. International Harm Reduction Association. *What Is Harm Reduction?* 2010. Available at: http://www.ihra.net/reports. Accessed on March 6, 2014.
22. Pfeiffer S. Rights of indigenous people and the international drug control regime: The case of traditional coca leaf chewing. *Goettingen J Intl L*. 2013;(5):287–324.
23. United Nations Office on Drugs and Crime. December 6, 2013. Contribution of the Executive Director to the high-level review of the implementation of the Political Declaration and Plan of Action on International Cooperation towards an Integrated and Balanced Strategy to Counter the World Drug Problem, to be conducted by the Commission on Narcotic Drugs in 2014. UNODC/ED/2014/1.
24. Bewley-Taylor DR. Challenging the UN drug control conventions: Problems and possibilities. *Int J Drug Policy*. 2003;14(2):171–179.
25. Room R, MackKay S. *Roadmaps to Reforming the UN Drug Conventions*. Oxford, UK: Beckley Foundation; 2012.
26. Fazey CS. The Commission on Narcotic Drugs and the United Nations International drug control programme: Politics, policies and prospect for change. *Int J Drug Policy*. 2003;14:155–169.
27. Nutt D, King LA, Saulsbury W, Blakemore C. Development of a rational scale to assess the harm of drugs of potential misuse. *Lancet*. 2007;369(9566):1047–1053.
28. Nutt, DJ. *Drugs—Without the Hot Air: Minimising the Harms of Legal and Illegal Drugs*. Cambridge, UK: UIT; 2012.
29. Caulkins JP, Reuter P, Coulson C. Basing drug scheduling decisions on scientific ranking of harmfulness: False promise from false premises. *Addiction*. 2011;106(11):1886–1890.
30. Rolles S, Measham F. Questioning the method and utility of ranking drug harms in drug policy. *Int J Drug Policy*. 2011;22(4):243–246.
31. Kalant, H. Drug classifications: Science, politics, both or neither? *Addiction*. 2010; 105:1146–1149.
32. Danenberg E, Sorge LA, Wieniawski W, Elliott S, Amato L, Scholten WK. Modernizing methodology for the WHO assessment of substances for the international drug control conventions. *Drug Alcohol Depend*. 2013;131:175–181.
33. Swiss Federal Commission for Drug Issues. *From a Policy on Illegal Drugs to a Policy on Psychoactive Substances,* 1st ed. Bern, Switzerland: Huber; 2006. [Full report available in German only].
34. Stevens A. *Drugs, Crime and Public Health. The Political Economy of Drug Policy*. Oxon, UK: Routledge; 2011.
35. Foddy B, Savulescu J. A liberal account of addiction. *Philos Psychiatry Psychol*. 2010;17(1):1–22.
36. Davies JB. *The Myth of Addiction,* 2nd ed. Amsterdam: Harwood; 2000.
37. Carter A, Hall, W. *Addiction Neuroethics*. Cambridge, UK: Cambridge University Press; 2011.

38. Room R. Scales and blinkers, motes and beams: Whose view is obstructed on drug scheduling? *Addiction*. 2011;106(11):1895–1896.
39. Hunt N. Public health or human rights: What comes first? *Int J Drug Policy*. 2004;15(4):231–237.
40. Boire RG. On cognitive liberty I. *J Cogn Liberties*. 1999;1:7–13.
41. Boire RG. On cognitive liberty II. *J Cogn Liberties*. 2000;2(2):7–20.
42. Bublitz JC. My mind is mine!? Cognitive liberty as a legal concept. In: Hildt E, Francke A, eds. *Cognitive Enhancement*. Dordrecht: Springer; 2013:233–264.
44. Bublitz JC. (2015). Cognitive liberty or the international human right to freedom of thought. In: Clausen J, Levy N, eds. *Springer Handbook of Neuroethics*, Dodrecht, NL, pp. 1309–1333.
45. Husak DN. *Drugs and Rights*. New York: Cambridge University Press; 1992.
46. Ree EV. Drugs as a human right. *Int J Drug Policy*. 1999;10:89–98.
47. Bublitz JC, Merkel R. Crimes against minds: On mental manipulations, harms and a human right to mental self-determination. *Crim Law Philos*. 2014;8(1):51–77.
48. Husak, D. Recreational drugs and paternalism. *Law Philos*. 1989;8(3):353–381.
49. Feinberg, J. *Harm to Self: The Moral Limits of the Criminal Law*. Vol. 3. New York: Oxford University Press; 1986.
50. Boiteux L, Chernicharo LP, Alves CS. Human rights and drug conventions: Searching for humanitarian reason in drug laws. In: Labate B, Cavnar C, eds. *Prohibition, Religious Freedom, and Human Rights. Regulating Traditional Drug Use*. Dodrecht, NL: Springer; 2014:1–23.
51. Flacks S. Drug control, human rights and the right to the highest attainable standard of health: A reply to Takahashi. *Hum Rights Q*. 2011;33:856–877.
52. Merkel R. Treatment—prevention—enhancement: Normative foundations and limits. In: Merkel R, Boer G, Fegert J, Galert T, Hartmann D, Nuttin B, Rosahl S, eds. *Intervening in the Brain: Changing Psyche and Society*. Dodrecht, NL: Springer; 2007:286–378.
53. Schleim S. Cognitive enhancement—Sechs Gründe dagegen. In: Fink H, Rosenzweig R, eds. *Künstliche Sinne, gedoptes Gehirn*. Paderborn, DE: Mentis; 2010:179–207.
54. Hofmann A. *LSD My Problem Child: Reflections on Sacred Drugs, Mysticism and Science*. Santa Cruz, CA: MAPS; 2009.
55. Shulgin A, Shulgin A. *Phikal*. Berkeley, CA: Transform; 2007.
56. Gasser P, Holstein D, Michel Y, et al. Safety and efficacy of lysergic acid diethylamide-assisted psychotherapy for anxiety associated with life-threatening diseases. *J Nerv Ment Dis*. 2014;202(7):513–520.
57. Griffiths RR, Richards WA, McCann U, Jesse R. Psilocybin can occasion mystical-type experiences having substantial and sustained personal meaning and spiritual significance. *Psychopharmacology*. 2006;187:268–283.
58. Griffiths RR, Richards WA, Johnson MW, McCann UD, Jesse R. Mystical-type experiences occasioned by psilocybin mediate the attribution of personal meaning and spiritual significance 14 months later. *Psychopharmacology*. 2008;22(6):621–632.
59. Studerus E, Kometer M, Hasler F, Vollenweider F. Acute, subacute and long-term subjective effects of psilocybin in healthy humans: A pooled analysis of experimental studies. *Psychopharmacology*. 2011;25(11):1434–1452.
60. Krebs T, Johansen PO. Psychedelics and mental health: A population study. *PLOS Med*. 2013;8(8):E63972
61. Dubljević V. Prohibition or coffee shops: Regulation of amphetamine and methylphenidate for enhancement use by healthy adults. *Am J Bioeth*. 2013;13(7):23–33.
62. Manos MJ, Brams M, Childress AC, Findling RL, Lopez FA, Jensen PS. Changes in emotions related to medication used to treat ADHD. Part I: Literature review. *J Atten Dis*. 2011;15(2),101–112. doi:10.1177/1087054710381230.
63. Repantis D, Schlattmann P, Laisney O, Heuser I. Modafinil and methylphenidate for neuroenhancement in healthy individuals: A systematic review. *Pharmacol Res*. 2010;62(3):187–206.