

## Performance Enhancement and Legal Theory

An Interview with Professor Michael H. Shapiro

### **Which performance enhancement technologies do you think will raise the most interesting or problematic legal and ethical issues?**

Some technologies emerging from the research being done now will, at least at first, be used within a disorder model. Let me comment on disorder models and the meaning of “enhancement.” The terms “enhancement” and “augmentation”<sup>1</sup> are problematic – not meaningless, but hard to interpret. You can set up the problem in the following way: There are lots of things that we do to improve our situations that don’t seem troublesome to most people. The prime example is placing these processes within a justificatory model based on remedying disorder, trauma, or the like. We don’t think of these procedures as enhancement because they target (in theory) only disorders, injuries, and defects and (again in theory) generate only the improvement resulting from cure or palliation. Models are, roughly, abstract guides to action or evaluation or analysis generally. A disorder model has axioms of the form: If P has disease X, then P may (should? must?) use therapy Z to rectify the situation. This account leaves out various qualifications we can ignore for a time. We don’t have to deal with whether the person can be forced to be treated – although it will turn out to be very interesting to consider whether some persons entrusted with complex tasks in either the public or private sectors can be required to accept technological enhancement in order to remain on the job. Of course, when readers of *Extropy* think about enhancement, they’re certainly not confining themselves to matters of controlling disorder – they may not even think of the latter as true enhancement, although remedying diseases and injuries generally leaves one better able to perform than while ill. Also, we generally view traditional minor forms of enhancement (like caffeine) as part of a baseline that defines acceptability. Sometimes history serves to ratify practices that might be questioned on some theory. (Treating forms of attention deficit disorder with stimulants is, in theory, within the disorder model.)

In an article I wrote on performance enhancement in the *Southern California Law Review* in 1991, I started off with some examples to illustrate the distinction between enhancement and therapy. Kirk Gibson used cortisone for a bad knee and hit a home run that helped win the opening game of the 1988 World Series for the Dodgers. On the other hand, in the same year, Ben Johnson ran in the Olympics but was found to have taken steroids. This was not for medical purposes, however, and the Olympic officials nullified his victory.

But there are situations that are somewhat more ambiguous, and this is reflected in the law: the steroid problem in athletic competition inspired some statutes. They were meant to deal with these two primary justificatory models – disorder and augmentation. For example, in Florida, there’s a statute that says: “Prescribing, ordering, dispensing, administering, supplying, selling, or giving growth hormones, testosterone or its analogs, human chorionic gonadotropin (HCG), or other hormones for the purpose of muscle building or to enhance athletic performance [are grounds for professional discipline]. For the purposes of this subsection, the term ‘muscle building’ does not include the treatment of injured muscle. A prescription written for the drug products listed above may be dispensed by the pharmacist with the presumption that the prescription is for legitimate medical use.”<sup>2</sup>

Well, of course, one puzzle is that if you treat injured muscle, or fix broken bones, or give cortisone for a bad knee, you’re improving performance, but you should still get a “therapeutic exemption.”<sup>3</sup> But, you might say, it’s bringing a person up to a previous baseline, so it’s natural. These substances have dual uses, of course, and their effects and purposes may be hard to separate. What if the therapy takes you past your personal baseline – or even beyond assumed human limits?

Some argue that nature has some kind of moral force linked to it. But what you’re doing when you give athletes steroids – or enhancers to anyone – is to try to raise them above their natural baseline.

But suppose someone with a lot of athletic talent is born with a predisposition for chronic arthritis and finally is given cortisone as an adult. This person never had a prior “normal” baseline. The most you can say is that there is a rough ideal normal baseline – that is, normal to the human species – that the person has always fallen short of. It’s still a disorder model that’s invoked to treat the arthritis, and the fact that it’s “baseline” for that person doesn’t suggest that treatment is questionable.

What about people who take caffeine for headaches? If I take commercial acetaminophen (Tylenol), which contains caffeine for additional pain control, it may improve my performance *both* by relieving the headache and by the stimulant effect. Sometimes musical performers will use beta blockers to keep their hands from trembling or to steady their voices. Substances which are generally thought to be performance *dampers* in some contexts may be performance enhancers in others. For example, people who are in rifle competitions might want to drink an alcoholic beverage.<sup>4</sup> It can reduce their tremors and calm them down. So, you have to sort out exactly what is being done for what purpose and consider what system of justification we’re talking about – and whether that justifying model *should* make any difference.

The last point should be stressed. The very reason for distinguishing disorder from augmentation models is seriously in question, quite apart from the expectable difficulty of drawing boundaries between them.

To focus more on your question about legal and ethical issues, here are some examples: Think about human growth hormone [HGH]. There are people with diseases of the pituitary who are extremely short. I think many would agree that it’s okay to give them human growth hormone – maybe even obligatory – provided we satisfy ourselves about the costs, which have to be weighed against the benefits. (The normative risks include the implied put-down of short stature.) We can leave aside for the time being the question of the child’s current preferences.

But what about other persons who have no pathology underlying their short stature? Suppose you’re a child predicted simply to be at the low end of what seems like normal variation in the bell curve of height. You’ll just be very short – say, an adult male who’s less than five feet tall – and you’ll have trouble reaching the gas pedal on a car, people will be bumping into or falling over you, you won’t get dates, and perhaps you won’t advance in your career. What do we say here? You can try to view this situation under a “handicap” model instead of a disorder model – that is, the

person is considered operationally impaired compared to the species norm, questions of disorder aside. But perhaps this is just evacuating the disease model, replacing it with an augmentation model in order to get to the species baseline, though not necessarily rising above it. In any case, why are only the disordered the only acceptable candidates for medical treatment with HGH? And why can't they go past the baseline?

One difficulty in condemning enhancement is that we all accept it in some form – even technological – as part of our shifting baseline of what's normal and acceptable. For example: I was going down the hall near my office and one of our visiting professors was walking in my direction. He had a cup of coffee in each hand. I said, “Two cups of coffee?” And he said, “Gotta be sharp!” But historically few people worry about caffeine use – side-effects aside – except in specific situations like athletic competition, though there is increasing grumbling about it.<sup>5</sup> There's no disorder model at work (treatment of headache, narcolepsy, etc., aside), but the augmentation is fairly modest.<sup>6</sup>

In the case of performance enhancement in sports, games, and contests – we might call admission to universities contests – I've divided up the analysis into several overlapping dimensions, which apply both to physical and mental enhancement. They are all morally freighted. There are *rigid moral category* arguments based on certain ill-defined concepts that misleadingly *appear* (to some) to be well defined – but they aren't – and purport to tell you in an algorithmic way what you can and can't do – but they don't. They include “nature” or “nature's gifts,” “identity,” and the “internal/external” contrast. The reason I have these moral category arguments set up like this is that they are often used in a ham-fisted, formalistic way. They are a partially reified and partially distorted subset of moral argument generally, but of course not distinct from such argument. The contrast here is not between using moral and nonmoral considerations, but between using moral concepts rationally as opposed to fashioning them into highly abstract and functionally inflexible moral categories of judgment. But, to emphasize, all moral category arguments, sound or ham-fisted or not, are moral arguments. Arguments resting on “frozen” moral categories are only particular forms of moral argument. Many of them overlap; some may be extensionally equivalent. For example, the loss of the sense of “gift” or “givenness” may be a trope for arguments from nature, or from Gods' Bounty. They may also suggest a kind of moral risk aversion: messing with What Is portends moral culpability – as well as moral heroism – for what we might do as trait (or even species) Creators. Such expanded realms of choice are novel in many respects, and they entail expanded realms of personal moral responsibility – a fearful and oppressive prospect for some, a grand opportunity for others. But the anti-enhancement argument based on giftedness<sup>7</sup> collides with the *Imago Dei* framework: we implement God's will by accepting creative powers based on the idea that humanity was created in the image of God.

So, the moral category arguments include overlapping sub-arguments, such as arguments from nature, arguments from identity, from merit, and from external influence. The natural/unnatural distinction generally lacks decisive power here. Nature may often thought to be morally weighted, but this moral weight, if any, is pretty attenuated. Still, you can often take what is natural – assuming you can define it at all – as a default guide to something that works; it can *sometimes* serve as a useful starting point.<sup>8</sup> But the presumption that it is a good guide to rectitude is often overcome: it's not natural to take antibiotics, for example. What people mean by “natural” or “unnatural” I think is whether or not it conforms to what has become part of the normal baseline for human beings – such as wearing clothes. We call it “natural” because it's traditional, useful, largely harmless, and seems instinct with surviving in nature. In this sense, it's natural for us to put clothes on, but obviously it's unnatural in some other, narrower sense. It is instructive to compare the different senses. I'll say some more about moral category arguments later.

There are also arguments based upon *harm and coercion*. Of course these are also moral arguments and make for legal arguments too. They appear to be somewhat less fixed and the arguments are often made in a less formalistic way than in the domain of more rigid forms of moral category. They gain some additional force where the technology is very risky – but of course traditional training, not to mention the sport itself, can be risky too. It's not always clear what the incremental risk is when – or if – the technology is used properly.

Next there are analytic paths I call *competitive coherence* arguments, whether concerning sports or other contests or games. People will say things like: “You cannot have performance enhancement in contests because it defeats the entire purpose of the game.” In some forms these arguments make no sense because they circularly assume that enhancement is prohibited. But our question is whether there *ought* to be prohibition or constraint in the first place. The real issue concerns the situation where there is no prohibition, but competitors might be required to disclose what they're using. Without such disclosure, you'd have a different kind of game that you might not want, but it wouldn't (necessarily) be *incoherent*. “Breaking the rules” might not even be cheating (and so would be “within the rules,” in a different sense of “the rules”), given how the game is defined and actually *performed*. We *expect* deliberate fouling in basketball, for example, and many expect irreparable actions inconsistent with “the rules,” as in baseball.<sup>9</sup>

Finally, I invoke a set of arguments called *normative-systemic* arguments – they might be called social or institutional arguments – which seem to me to be the only arguments that make any sense, when part of a larger moral argument. But they aren't overwhelming either.

Suppose, for example, you have a performance enhancement technology that is extremely risky. There was a poll taken – how credible I can't tell – reported in Reuters in 1988, in which Olympic athletes were asked something like: “If you knew you could take this drug and you knew it would guarantee you a gold medal but would kill you five years later, would you take it?” Supposedly half of them said yes, but who knows whether they'd actually do it when confronted with it? Taking polls may be necessary to catch a glimmer of supposed facts, but they may not give you a firm grip on them.<sup>10</sup>

Now, here's a thought experiment to illustrate the argument: I have an 8-year-old and a 4-year-old. Do I want them to think it's okay to make that deal? Is it that important to get a gold medal, at the price of dying at an early age? That exchange seems to me to be bizarre – but of course I've never been an elite athlete with a chance for glory. Under *some* moral theories, including even autonomy theories, it would be wrong to take such risks; *future* autonomy would be totally shut down. Still, if some people already have this gold-medal-but-die-early preference, there are autonomy-based reasons for letting them go ahead with it, although there are counter-arguments from a variety of moral frameworks. But the question here is: can and should we control the acquisition of these risk-taking preferences in the first place? That sort of dangerous – even lethal – behavior will look to many like an assault on the value of life. And people – including children-people – learn from what they see. Athletic competitions may be particularly effective social learning mechanisms: “Everything I needed to know in life I learned from baseball” – that sort of thing.

So this is an individual and social norm-learning argument – and social norms have massive influence on thought and behavior. The spectacle of an open practice in which people take enormous risks with their health or their life in order to get a prize tends to reinforce value systems that may be acceptable in a society if a few people have them (say, the military class or a few with “the right stuff”) but not if many do. It may be OK on a broader scale in a more complete warrior state (Sparta?), but not here. If external observers came down from another galactic quadrant, how would they measure the value we assign to life under a win-and-die system? But these are mixed empirical and moral questions that are hard to answer. And in any case, current enhancement techniques usually won't kill you if used properly.

Another argument from social learning is that if you perceive performance enhancement as producing a return disproportionate to your efforts, then it conveys the idea of getting something for nothing. It promotes a sort of welfare ethic: one should expect (at least partially) huge unearned benefits. But the prospect of huge and unearned gains is, in the case of steroids and most *current* enhancers, quite mistaken; one doesn't take a pill and immediately swell up and attain the strength and speed necessary to lift the continental shelf or at least win the decathlon. If people *do* see it this way, however, they see competitors getting something for nothing, which weakens values of diligence, fortitude, and so on. *We learn from what we see, and if we see it wrong, we still see it and learn (the wrong thing) from it.*

**But current enhancers don't seem to actually work that way. It just means everybody just has to push harder. The other guy is going to be using it too!**

Yeah, that's right. If everybody used it, of course, and if it improved everyone by the same absolute increment, you would be shifting the bell-shaped curve to the right. This won't be precisely true in fact, but it's a useful approximation in trying to model possible futures.<sup>11</sup> You would be improving absolute performance levels but, in many cases, not relative ones. In theory, no one's positional advantage would change. This is a major point, rarely made by anyone, never mind sports writers. The nature of the contest might change, of course, with significantly enhanced performance across the board. Some might, in response, want to change the rules of the game (e.g., a larger playing field). In any case, widespread performance enhancement might even make people more diligent and move them to try harder – generally considered a good thing – if only to avoid loss of relative position. And it's hard to see, if the same people keep on winning and losing, how you're getting an inappropriate reinforcement of something for nothing. True, absolute performance would seem to be heightened, suggested disproportionate returns. But the idea that you can get more bang for the buck might be far more reinforced if people were cheating and you knew they were cheating but you didn't know who. Detection mechanisms are quite imperfect and might always be so. This sort of thing is important in contests such as getting admitted to universities – SATs, etc., or applying for jobs or licenses – where performance enhancement bans or regulations would be sought to maintain a “level playing field” (not an entirely clear concept, but we can't cover everything here). Of course, if enhancements are banned and some people cheat, then the contest is unfair, at least going by the books.

These “by the books” and related cheating issues suggest the more comprehensive competitive coherence argument I mentioned earlier, which forms the weakest argument against enhancement. It trades on a misunderstanding. If you want to define what a sport or a game is, you have to consider not only the canonical definition in the rule book, but also how the game is actually played.<sup>12</sup> You could consider – and I'm going to use the term “cheating” in a paradoxical sense – constructing games based on seeing who can cheat the best. (But if it's an understood part of the game, can it be cheating?) Sports teams, during a game or even at practice, try to make sure that no one's spying on them. There have been a few scandals in which the supposed cheaters got caught.<sup>13</sup> Well, you could construct a not-really-cheating cheating game embracing such practices, whether explicitly or silently. You could have a comprehensive contest in which you not only play football but you spy, do psychological warfare, kidnap the opposing quarterback, and so on. Some may think this is unfair. But you could construct a game where those are the rules applying to everyone. You can even throw in an assumption that the ability and resources to cheat are fairly evenly distributed. Why don't we have games *defined* like this – at least at present? Games like this are internally coherent, but, not surprisingly, people may think they promote adverse individual and community-wide learning – and so do not cohere with the larger normative system. After all, you

don't want kids in high school to play football and think it's okay to kidnap and kill the opposing quarterback. (Maybe this sort of thing is OK for training Sardaukar in Frank Herbert's *Dune* (1965). I certainly don't want to live in a society like that. But we're not quite there yet.

In a less fanciful situation, however, if you permit performance enhancement but require disclosure, the game is clearly not internally incoherent, and not obviously incoherent with basic social norms. The terms "cheating" and "preserving a level playing field" are largely pointless descriptors here.

Some of the authors in *the Journal of the Philosophy of Sport*<sup>14</sup> protest that if you allow steroids and certain other enhancers then what you are doing is not really testing talent, effort, skill, or diligence. What you are testing is how the body reacts to a certain chemical, or to some other technology. This is unpersuasive because, first, you could also argue that with traditional training, what we are testing is how one's body responds to lifting heavy objects, going on special diets, or training generally. We're testing arbitrary differences among persons, like variations in the genome. Second, even the capacity to try hard is affected, though not decisively, by genetics. I'm pretty clumsy. Should I protest: Why am I being judged against somebody else who's got better body control, better anti-clumsy genes, or is, by her nature, more driven to overcome limitations? Does that make any more sense than objecting that you're simply being tested to see how your system reacts to steroids?

I'm skipping over assessing the coherence of using what might be called supplements and implements – for example, better track shoes and running tracks – even better clothing, such as swimsuits.<sup>15</sup> There are also devices that form part of a contest's definitional core – poles in vaulting, autos in auto racing. Better poles are a kind of performance booster, but not an enhancer. If they were electromechanically contrived to allow people to jump forty feet, we'd have a different – but not incoherent – game. So you can see, again, that the concept of performance enhancement isn't entirely clear.

### **Could you explain a bit more about moral category arguments?**

OK, back to moral category arguments – they overlap – for a bit. Performance enhancement sometimes gets people to thinking about questions like: are we sure just *who* is performing? There was a paragraph by H.L.A. Hart in an article that he wrote in the *Harvard Law Review* in 1958 in which he imagined a world in which we all changed traits constantly in ways that, on any theory, seem to involve a change of identity – or the absence of stable identity. Say you took a pill and it increased your mental and physical abilities enormously. (This is akin to what happened when the earth passed out of a longstanding cognitive dampening field in Poul Anderson's *Brain Wave* (1954). In such circumstances what does it even mean to say that someone won a contest? These questions suggest a world in which performance enhancement alters identity in such a way that it's very hard either to get a grip on what the game or the sport is, or who or what won it. Such "contests" wouldn't track our current notions of winning and losing, or our ideas of merit or desert. The main moral categories here are identity and merit.

But as things are now, it's very difficult to see how any current performance enhancement agents compromise identity (unless someone trivially identifies identity with whatever characterizes you as a given instant). We can anticipate technologies in the next generation, such as drugs that act like steroids but don't have serious adverse effects. Suppose performance enhancement with these drugs were accepted and regulated. There would be no identity crisis here. There wasn't even that serious an identity crisis with the Mentats in Frank Herbert's *Dune* novels: they all enhanced their mental abilities with the spice and were viewed as persons with continuing identities. But there are contexts in which we might not even care that much about identity – say, enhanced scientists finding cancer cures. (But what do we do when Nobel Prize

time comes around?) Mentats were used as tools (probably not *mere* tools) to defend the feudal houses in the Dune setting; their identities, from that standpoint, were of limited importance. Putting it that way suggests an objectification argument against enhancement – part of another moral category: technological modification will, it is argued, reduce our value as separate, free persons to that of things for mere use as means.<sup>16</sup> I can't elaborate on that here. In most contexts, the argument is not powerful, but carries some weight where there are significant emotional and financial investments, as in germ line augmentation, because of incentives toward intrusive implementation. But one can easily imagine a reduced-humanity world, as in the *Spartacus: Blood and Sand* TV series pitting slaves against each other in combat.

Of course, there are many merit-recognition problems apart from the complexities induced by enhancement. Who gets credit for winning a football game? The team, the quarterback, the coach, the trainer, Mom and Dad, God? It's an interesting question, but not one to agonize over. In general, there's nothing unintelligible about dividing up credit, as long as you specify, if possible, what the credit is for. The problem of course is more vividly presented with technological enhancement. Who gets the credit for the enhanced performance of a person modified by germ line engineering? We have already genetically engineered larger mice by incorporating rat growth hormone genes into mice embryos. If germ line engineering produces a tall person who succeeds in the NBA, to whom do we give credit? The basketball player himself, the person who engineered the genes, the parents who decided to do this? The answer is yes to all – but credit *for what*? Still, we ask that very question with or without enhancement. Who gets credit for Yao Ming? Some have claimed that he came to be as a result of careful planning – a form of positive eugenics? – by China, whose parents had been “drafted” into the sports system. They nurtured him, he was trained by Chinese basketball, and by the Houston Rockets.<sup>17</sup> Lots of input there.

Hovering over all these issues – and strongly linked to them – are access-distribution problems. (I'm moving beyond your moral category question here.) It's one thing to complain that not everyone can get a Rolls-Royce. But if you could generate major changes in mental and physical ability only through very expensive technological applications, you may sharply and irreversibly increase social *partitioning* to the point of true “lock-in.” Perhaps this is a form of “market failure” (economists may object to this description) arising from the risk of expanded unbridgeable stratifications. One couldn't simply say, “Talent will out and the smart have open futures,” because talent and smartness are themselves for sale and only the wealthy (possibly but not necessarily talented) can afford them. Enhancement technologies aren't free, and future development and economies of scale may still leave them beyond the means of many persons. Whatever the conceptual difficulties in doing so, we think of these technologies as affecting merit attributes, which themselves are the bases for distributions: they are resource-attractors, and acceleratingly so, so the incremental role of merit diminishes. Compare compound interest, and objects that gain further gravitational power through continuing gravitational accretion of mass. If you're very smart, you might deserve some rewards more than other persons do. But when these commodities are themselves mechanisms to (in a loose sense) “enhance merit” itself – well, Who merits merit?, as I asked in a 1974 *Southern California Law Review* article.

I add a last point to this truncated discussion of distributional issues. There are those who downplay their importance, insisting that main point of analyzing enhancement is the threshold propriety of use.<sup>18</sup> This is quite overstated. Distributional issues cannot rightly be assumed away: the threshold propriety and the distributional issues, while distinct, are linked, conceptually and morally. Distribution is a critical issue not only in using technologies but in deciding whether to go ahead with developing them at all; the Matthew Effect is no small matter here.<sup>19</sup> If we decide that enhancement is tolerable, permissible, good, or even obligatory when distribution is not at issue,

distributional effects – such as drastically exacerbated and irreversible social stratification – may render the moral price of enhancement unacceptable in some eyes, on some theories. *If the partitioning is linked to race, ethnicity, gender, religion or other problematic classifications, the price may be that much higher.* Some might find it more acceptable if the distribution were required to benefit the worst off in some defined ways.<sup>20</sup> And even if enhancement is generally unacceptable, *it will occur*, and distributional issues may remain significant moral issues even when we deal with illicit goods.

### **What are the moral and public policy consequences of recognizing this inevitability of enhancement?**

The apparent inevitability of enhancement generates serious moral and policy issues. One possibility is that there is simply no *acceptable* way to stop enhancement. The parallel to the war on drugs is obvious. I suppose we could avoid an enhancement regime by installing a fully surveillant and otherwise intrusive prohibition and enforcement system, and even then it would be imperfect. The “least worst” option is to find some way, in athletics, education, the workplace ... to install acceptable enhancement systems. In real life, we will never tolerate total market freedom, either because of clear market failures or situations that seem morally akin to them. In athletics, for example, even those calling for the removal of flat bans on enhancement concede that they will have to make room for systems to promote medical safety and promote access. (Black markets are more dangerous to health.) They will, one hopes, not be anywhere near as intrusive and morally questionable as I think the current regime is.

Difficulties in formulating distributional criteria for access to education and employment are compounded because there is, in principle, no determinately sound and complete system for selecting the traits to be used in forming different kinds of persons. Nozick’s “genetic supermarket”<sup>21</sup> (in theory not limited to genetics) avoids the problem of centralized decisions, but provides no guidance for individual choice for conscientious decision-makers who seek sound criteria. The “procedural solution” is often fairly empty (as in “Let’s settle this through conversation”; what does one converse about?). But the market is not a general solution across the board, although it is an indispensable starting point, if autonomy is a prime value.

In any event, we are bound to look for the least worst system, even if we can’t discover or implement the best.

Finally, enhancement obviously impacts our basic values, which vary, in this domain, from congruence with each other to near-total conflict in assessing enhancement situations. Any practices that involve collisions between liberty, on the one hand, and its externalities and effects on equality in its various forms, on the other, will call forth government action. In turn, this will raise constitutional claims – because the constitution, expressly and by fair implication, embeds (at a high level of abstraction, to be sure) our basic moral values: autonomy, fairness, justice, equality, and social welfare or utility. But discussing the constitutional aspects of enhancement is for another time.

## **Notes**

This is a modified, updated version of *Performance Enhancement and Legal Theory: An Interview with Prof. Michael H. Shapiro*, by Max More, *Extropy: The Journal of Transhumanist Thought* 17, H2 (1996). It is not an exact transcription of the interview.

- 1 Unless otherwise indicated, freestanding occurrences of “enhancement” and “augmentation” refer to significant technological modifications of performance capacities, whether on living beings or via the germ line.
- 2 Fla. Stat. Ann. § 458.331(ee) (Westlaw 2011) See Florida Statute: [http://www.leg.state.fl.us/statutes/index.cfm?App\\_mode=Display\\_Statute&Search\\_String=&URL=0400-0499/0458/Sections/0458.331.html](http://www.leg.state.fl.us/statutes/index.cfm?App_mode=Display_Statute&Search_String=&URL=0400-0499/0458/Sections/0458.331.html).



- 3 See also *Therapeutic Use Exemptions*, World Anti-Doping Agency, <http://www.wada-ama.org/> (June 7, 2010).
- 4 Alcohol and beta-blockers are generally disallowed in official competition (“in-competition” only). See generally the *World Anti-Doping Code, The 2010 Prohibited List: International Standard*, §§P1, P2. “In-competition” apparently refers to testing at the time of the event, not at other times. See World Anti-Doping Agency, *World Anti-Doping Code*, §4.2.
- 5 See generally Cakic 2009 (discussing various drugs, including caffeine).
- 6 But note that caffeine is no longer a prohibited substance under World Anti-Doping Agency (WADA). *The World Anti-Doping Code, The 2010 Prohibited List: International Standard*.
- 7 See Sandel 2007: 85.
- 8 Others have made this point, and still others have disputed it. For example, compare Bostrom and Sandberg (2009) with Powell (2010).
- 9 It may seem odd, but it is not incoherent to celebrate baseball as a game of skill combined with “random” actions inconsistent with what are usually thought of as “the rules.” Recall Armando Galarraga’s officially ruined perfect game. Robert Wright (2010): “It’s sad that Galarraga won’t ever have what is rightfully his – so sad that some people are now saying baseball should do what pro football does: review close plays via video and reverse bad calls. Please, no. Bringing justice to baseball would defeat the whole point of the game.” What could “rightfully his” mean on this theory?
- 10 See generally Sokol 1986: “Prior to the 1984 Olympic Games in Los Angeles, a survey of top U.S. athletes was taken. They were asked: If a drug were available that would guarantee a gold medal in L.A., but also meant certain death in five years, would they take the magic pill? ‘Fifty-five per cent of those surveyed said “yes” and that is frightening,’ says Geoff Gowan, president of the Coaching Association of Canada.” (Found on Lexis.)
- 11 This interpersonal variation might be viewed as depending on differences in natural or acquired “aptitudes” for responding to technological enhancement. Merit “preserved”?
- 12 True, the rule book may be perverse. Suppose the rules contain a meta-rule specifying that errors in applying the rule by umpires/referees can never be corrected, thus structuring a game in part defined by random or even intentional errors. This seems close to the truth in some contests.
- 13 See generally PatsFans.com (2010): “Falcons Say Signal Stealing Part of Football...”
- 14 See Robert 2007.
- 15 There was a flap over using newly marketed swimsuits in official swimming events. See *New York Times* 2009.
- 16 This derives from the second formulation of Kant’s Categorical Imperative. One translation: “Act in such a way that you always treat humanity, whether in your own person or in the person of any other, never simply as a means but always at the same time as an end” (Hill 1992: 38–39).
- 17 For a report on his background, see generally Time Asia, *The Creation of Yao Ming*, adapted from Lamar 2005. <http://www.time.com/time/magazine/article/0,9171,1126765,00.html>.
- 18 A similar point is made by Christine Overall (see Overall 2009: 327, 331–332). But cf. Arthur L. Caplan (2009: 199–200) (preferring to separate distributional issues from the merits of the technological improvement process).
- 19 Merton 1968: 159 See also Matthew 25:14–30. “For unto every one that hath shall be given, and he shall have abundance: But from him that hath not shall be taken away even that which he hath.”
- 20 Note Rawls’ “difference principle” in this connection (Rawls 1999: 87).
- 21 Nozick 1974: 315 n.\*. See generally Glover 1984.

## References

- Anderson, Poul (1954) *Brain Wave*. New York: Ballantine Books.
- Bostrom, Nick and Sandberg, Anders (2009) “The Wisdom of Nature: An Evolutionary Heuristic for Human Enhancement.” In Julian Savulescu and Nick Bostrom, eds., *Human Enhancement*. Oxford: Oxford University Press, pp. 375–416.

- Cakic, Vince (2009) "Smart Drugs for Cognitive Enhancement: Ethical and Pragmatic Considerations in the Era of Cosmetic Neurology." *Journal of Medical Ethics* 35 (October 29), pp. 611–615.
- Caplan, Arthur L. (2009) "Good, Better, or Best." In Julian Savulescu and Nick Bostrom, eds., *Human Enhancement*. Oxford: Oxford University Press, pp. 199–209.
- Glover, Jonathan (1984) *What Sort of People Should There Be?* New York: Penguin.
- Hart, Herbert L.A. (1958) "Positivism and the Separation of Law and Morals." *Harvard Law Review* 71, pp. 593–622.
- Herbert, Frank (1965) *Dune*. New York: Ace Books.
- Hill, Thomas E. Jr. (1992) *Dignity and Practical Reason in Kant's Moral Theory*. Ithaca, NY: Cornell University Press.
- Lamar, Brook (2005) *Operation Yao Ming*. Harmondsworth: Penguin Books.
- Merton, Robert K. (1968) "The Matthew Effect in Science." *Science* 56.
- New York Times* (2009) "Performance-Enhancing Swimsuits." Editorial. (July 30).
- Robert Nozick (1974) *Anarchy, State, and Utopia*. New York: Basic Books.
- Overall, Christine (2009) "Life-Enhancement Technologies: The Significance of Social Category Membership." In Julian Savulescu and Nick Bostrom, eds., *Human Enhancement*. Oxford: Oxford University Press.
- PatsFans.com (2010) "Falcons Say Signal Stealing Part of Football ..." (June 8). <http://www.patsfans.com/new-england-patriots/messageboard/10/60827-falcons-say-signal-stealing-part-football.html>.
- Powell, Russell (2010) "What's the Harm? An Evolutionary Theoretical Critique of the Precautionary Principle." *Kennedy Institute of Ethics Journal* 20/2 (June), pp. 181–206.
- Rawls, John (1999) *A Theory of Justice*, rev. edn. Cambridge, MA: Belknap Press of Harvard University Press.
- Sandel, Michael J. (2007) *The Case against Perfection: Ethics in the Age of Genetic Engineering*. Cambridge, MA: Harvard University Press.
- Simon, Robert L. (2007) "Good Competition and Drug-Enhanced Performance." Reprinted from the *Journal of the Philosophy of Sport* in William J. Morgan, ed., *Ethics in Sport*, 2nd edn. Champaign, IL: Human Kinetics, pp. 245–251.
- Sokol, Al (1986) "U.S. Athletes Would Die for Olympic Gold Medal." *Toronto Star* (November 20, Thursday, final edition, sports section), p. H12.
- Wright, Robert (2010) "Perfectly Unfair." *New York Times*, June 8.

## Publications by Michael Shapiro in this Area

- 1974: "Who Merits Merit? Some Problems in Distributive Justice Posed by the New Biology." *Southern California Law Review* 48, pp. 318–370.
- 1991: "The Technology of Perfection: Performance Enhancement and the Control of Attributes." *Southern California Law Review* 65, p. 11.
- 1989: "The Technology of Success." [remarks on physical and mental performance enhancement] *L.A. Daily Journal* [county legal newspaper] January 17, p. 7, col. 1.
- 1989: "The Genetics of Perfection." *L.A. Daily Journal* [county legal newspaper] March 8, p. 7, col. 1.
- 2002: "Does Technological Enhancement of Human Traits Threaten Human Equality and Democracy?" *San Diego Law Review* 39, p. 769.
- 2003: with Roy G. Spece, Jr., Rebecca Dresser, and Ellen Wright Clayton, *Bioethics and Law: Cases, Materials and Problems*, 2nd edn. St. Paul: Thomson/West.
- 2005: "The Identity of Identity: Moral and Legal Aspects of Technological Self-Transformation." *Journal of Social Philosophy & Policy* 22/2, pp. 308–373. Reprinted in Ellen Frankel Paul et al., eds., *Personal Identity, Social Philosophy and Policy* 22. Cambridge: Cambridge University Press, 2006.