

Genetic Enhancement in Sports: The Role of Reason and Private Rationalities in the Public Arena

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Reviews of philosophical books run the risk of being either excessively and unconstructively critical or superficially praiseworthy. To avoid both these risks, we test the approach outlined by Häyry in his book *Rationality and the Genetic Challenge: Making People Better?* by applying it to an eighth genetic challenge, namely, a variation of the genetic enhancement challenge discussed by Häyry as it applies to sports. We assess whether genetic enhancement in sports should be conceived as an eighth wonder or an eighth cardinal sin that stems from the interaction between genetics and society, question whether Häyry's nonconfrontational approach is really useful for dealing with these issues, and discuss how his method can be improved.

In his book, Häyry analyses three ways to deal with what he considers the challenges posed by genetics to society, which he refers to heuristically as neo-consequentialism, neo-virtue ethics, and neo-deontology. A genetic challenge is defined as a "set of questions raised by the engineering of political and medical solutions to the original threats posed by nonhuman and human nature" to which "we cannot readily agree on what our reactions should be and *on what grounds*."¹ As the subtitle of the book suggests, genetic challenges are understood as possible ways to "make people better." Häyry provides an extensive overview of the state of the field by analyzing seven case studies, namely, preimplantation genetic diagnosis (PGD), the possibility to design children, savior siblings, reproductive cloning, embryonic stem cell research, gene therapies, and considerable life extension techniques. As depicted by Häyry—even though such labeling may not be correct, as John Coggon² and John Harris³ suggest—the first framework ("neo-consequentialism" or "rational tangibility") focuses on persons and how they value life and is represented in the works of John Harris and Jonathan Glover; the second ("neo-virtue ethics" or "moral transcendence") puts the emphasis on traditions and is exemplified by Michael Sandel and Leon Kass; and the third ("neo-deontology") focuses on principles, with Jürgen Habermas and Ronald Green given as examples, reaching very different conclusions in terms of the ethical acceptability of the genetic challenges presented above.

Although the central part of Häyry's book is devoted to the description of the state of the art concerning the seven wonders (or sins) of genetics, the most innovative chapter is the second, where Häyry spells out his methodological approach and the aim of the book. Häyry's original contribution to the discussion is the claim that it is not possible to conclude with philosophical tools which of

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the three frameworks is best for assessing the ethical justifiability of a new biotechnological practice, as the three approaches differ in the fundamental values and principles they employ. Häyry tests the internal coherence of each position, but claims that it is not possible to assess the superiority of any position over another on philosophical grounds. In his words:

If different approaches (or rationalities or methods of genethics) cannot be universally graded and put into order, as I am saying, then conflicting normative views cannot be put into one rational order, either, and we have no philosophical way of telling once and for all whether we should or should not engage in procreative selection, reproductive or therapeutic cloning, genetic engineering, or considerable life extension.⁴

Häyry analyzes the three approaches only on the basis of internal consistency, advocating what he labels “a non-confrontational notion of rationality”:

A decision is rational insofar as it is based on beliefs that form a coherent whole and are consistent with how things are in the world; and it is aimed at optimising the immediate or long-term impacts on entities that matter.⁵

According to Häyry, there are many divergent rationalities, all of which can be simultaneously valid. As a consequence, there are many rational moralities. We do not agree with Häyry that there are many divergent rationalities, but only that there are many different moralities that can be rationally supported. However, we do not want to dwell on this distinction. What is interesting, instead, is the “polite bystander” proposal that he generates from it. According to this perspective, all ethical principles and judgments have respectable support if they meet the criteria of internal consistency and if in each case the combination of principles and judgments is a stable balance from the author’s point of view (a so-called reflective equipoise).⁶

By presenting the main arguments for and against the genetic challenge, Häyry’s book turns out to be a valuable kind of textbook and an exhaustive picture of the state of the field. In this regard, the book is extremely engaging both for the clarity of the arguments presented and for the insightful indications it gives to readers for the articulation of their own views. But, if Häyry’s arguments are correct and ethical theories cannot be preferred on rational grounds, what are we readers left to do with his polite bystander view? As Häyry himself puts it at the end of the book: “Do we have any role in genethics, if all this [the content of the book] is to be believed?”⁷ In the last pages of the book, he lays out the work for the philosophically informed readers, when he writes that there are at least 72 stances that could be critically examined by the philosopher, resulting from the multiplication of three viable methods of ethics, three normative strands, and eight topics.⁸ Although Häyry has covered 10 in his book, he generously leaves quite a lot of work for us and other philosophers! But we do not think that focusing our attention on such a nonconfrontational experience would necessarily be an improvement over the actual state of the field and over the recognition of the existence of moral disagreement concerning questions raised by the genetic challenges.

What should we do with Häyry’s nonconfrontationalism then? Should we take it as a claim about diverse methods in ethics, or rather as an insightful plea to confront views at another, more appropriate level? We think that confrontational ethics is still important in many respects and that, if properly framed, can inform

debates and, hopefully, help at reaching the right conclusions. To show what we have in mind, we critique an eighth wonder (or sin) that Häyry does not take into account in his book, but which has been at the core of radical disagreement between neo-consequentialists such as Harris and Glover⁹ and neo-virtue ethicists such as Sandel and Kass: the problem of genetic enhancement in sports. This will demonstrate the problem faced when we move from a level of complete abstraction, where we simply want to know if something makes sense on its own terms, to a level of practical application, where we need to decide what can and cannot be done. As it relates to a regulated activity, the discussion of sport demonstrates the need to go beyond mere deference to distinct perspectives, even if they are internally coherent. We therefore go on to suggest a deliberative democracy as the direction that analysts in the field of genetics may want to take into account when they deal with the complexities of moral disagreement in the realm of legal and political decisions.

Nonconfrontation and Genetic Enhancement in Sports

In this section we assess the ethical permissibility of genetic enhancements in professional sport competitions. We analyze approaches to the ethics of sport in order to demonstrate both the strengths and the limitations of Häyry's philosophical methodology. Sport allows important insights into the way that Häyry's approach can be combined with a good deal of confrontational ethics. Professional sport is highly technological, as athletes nowadays are able to improve their performances with a larger array of aids than in the past. Of these aids, genetic enhancements are of particular relevance. Genetic enhancement, or gene doping as it is also called, is banned by international sport institutions. It is perceived as a threat to traditional core values constituting sport activities and shared by many people.¹⁰ It is the source of many ethical disputes and provokes the articulation of many contradictory "rationalities." Using it as a case study, we test Häyry's methodology and his claims about the role of philosophers in this aspect of the genetic challenge. We argue that philosophers are not left completely unable to assess the rationality of alternative approaches and go on to consider the necessary confrontation when a moral position underpins a practical decision. We begin by describing and evaluating the World Anti-Doping Agency (WADA)'s ethical position by reference to the internal consistency of its "rational" underpinnings.

WADA considers any substance or method to be doping, and thus prohibited, if

- 1) It has the potential to enhance or enhances sport performance
- 2) It represents an actual or potential risk to the *athlete*
- 3) It violates the spirit of sport.¹¹

Enhancements, genetic or otherwise, are thus prohibited because they would go against other competitors, against the athlete herself/himself, and against sport itself.¹² What is interesting in WADA's definition is its implicit emphasis on a deeply value-laden interpretation of sport. As it says in the first pages of the WADA code:

Anti-doping programs seek to preserve what is *intrinsically valuable* about sport. This intrinsic value is often referred to as the "*spirit of*

sport”, it is the *essence* of Olympism; [it] is characterized by the following values: ethics, fair play and honesty, health, excellence in performance, character and education, fun and joy, teamwork, dedication and commitment, respect for rule and laws, respect for self and other participants, courage, community and solidarity. Doping is *fundamentally* contrary to the spirit of sport.¹³

What these values really amount to and why certain kinds of enhancement actually threaten them are left to the readers’ intuition, as WADA does not explicate them in detail, nor does it give a single argument in support of its conclusions. Nevertheless, the conclusions reached by WADA are shared by a broad part of the public.¹⁴

However, do WADA’s rulings and people’s opinions tell us something relevant as to whether genetic enhancements in sport are ethically acceptable? Some argue it does and that the sheer existence of moral rejection of doping “is sufficient for it to be taken seriously and given moral weight, even if the perspective is inconsistent and conceptually flawed.”¹⁵ As we argue below, there is an important distinction to be made in approaches to “genetic challenges” between a philosophical level of analysis, in which evidence and arguments in support of any claim must be put forth, and the political level of analysis, in which people’s moral views need to be taken into account. Let us tackle the philosophical level first.

Although a thick description of sport—one that takes into account both its purposes and ends—might be important for a correct understanding of the values at stake in it, a convincing rational tangibility argument still needs to be made to show how these values would be undermined by genetic enhancements. What is wrong with genetic enhancement? And why should it impair the essence of sport? The way WADA deals with the notion of the spirit of sport is certainly too sketchy for the purposes of philosophical analysis. However, its reference to deep values characterizing this activity leads us to categorize it, in Häyry’s terms, as a kind of moral transcendence view. To philosophically unpack the moral transcendence view on sports we draw on the report *Beyond Therapy*, delivered by the President’s Council on Bioethics. The Council, appointed by former U.S. President Bush in 2001, chaired by Leon Kass and having Michael Sandel as one of its members, was charged “to undertake fundamental inquiry into the human and moral significance of developments in biomedical and behavioral science and technology.”¹⁶ *Beyond Therapy* aims at spelling out what, if anything, is morally problematic about the genetic advances. The Council undertakes this task by giving center stage to the purposes and means of the activities that might be affected by genetic enhancements. The problem of enhancement in sport—or of “Superior Performance,” as it is phrased in the relevant section of the report—is a case in point. The claim is that the extensive use of enhancing agents (genetic or not) by athletes would corrupt the true nature of sport. The Council recognizes that one of the fundamental aims of sports, especially professional sports, is excellence. However, according to the writers of the report, the struggle for excellence depends on, and can be achieved through, several means. Some of these are natural talents, such as the genetic endowment of an athlete. Others depend on the athlete’s moral strength, such as perseverance in training. Others still have to do with the kind of external edges that help improve those characteristics, such as training in good facilities by good coaches, good

equipment, balanced diets, and so forth. Among the external edges athletes can use are the so-called gene enhancement methods.¹⁷

What, if anything, is the ethically relevant difference between these methods and other more traditional means to achieve better performances? According to the report, although genetic enhancements are not, in absolute terms, utterly different from other kinds of traditional enhancements, they are distinct in a “humanly” and ethically significant way. Genetic enhancements would eventually “partially alienate” the athlete from her performance.¹⁸ The ethical salience of the distinction pertains to the special relationship that the athlete establishes with her discipline or, to use the report’s terminology, the way in which the “doer” connects with the “deed.” Within this context, those improvements achieved by active training have to be seen as prominently human and honorable for the peculiar way in which they bring about a “connection between effort and improvement, between activity and experience, between work and result.”¹⁹ It is this combination of talent and moral character that defines superior performances as peculiarly human. Hence, according to the report, although the difference between genetic enhancements and more traditional ways to achieve better performances might be one of degree, it is one that matters on ethical grounds. The former would, in fact, appear to the agent as a kind of magic because, by introducing an external edge to the athlete’s body, it would improve her performance at the cost of dehumanizing the essence of the activity.

We agree with the President’s Council’s claim that an appropriate analysis of the meaning of sports cannot be reduced exclusively to performances and must take into account profound values. The report mentions aspiration, effort, activity, achievement, and excellence, but one could add more to the list, for instance, joy, respect, and solidarity. These values need to be balanced to find solutions to the questions concerning the admissibility of genetic or other kinds of enhancement.²⁰ Any philosophical analysis that underestimates these aspects would fail to capture the intricate ethical dimension of sports. However, the President’s Council fails to demonstrate that genetic enhancements would threaten sport and its values up to the point of dehumanizing it. The Council provides inadequate argument that values like those listed above will no longer be required to become excellent athletes. Furthermore, if there is a continuum between genetic and other kinds of performance enhancers, such as diet and training, it is difficult to claim that there is something special, or exceptional, in genetic interventions. Environmental factors such as diet and facilities can influence an athlete’s performance at least as much as the modification of a gene involved in a multifactorial trait such as athletic performance. Although many are inclined to view genetic contributions to ourselves as something exceptional, something that determines identity, this is not scientifically correct. Indeed, diet and nutrition affect a person’s performance through epigenetic mechanisms that also play a fundamental role in shaping a person’s capacity.²¹ Thus the moral distinction between genetic and nongenetic enhancement collapses. The continuum between genetic and nongenetic enhancements does not give principled grounds to claim that some important values we ascribe to sport would be lost were genetic enhancement techniques safe and liberalized. The positions outlined in the Council Report are based on the presumption that there exists a clear-cut distinction between genetic and nongenetic enhancement and on the notions of human nature and human dignity, which are never thoroughly specified. The

absence of such a distinction and the lack of an explicitly elaborated metaphysics are fatal to the arguments outlined in the Report itself.

This analysis of the ethics of sports case demonstrates the utility of Häyry's nonconfrontational approach. It shows that nonconfrontational analysis can be useful in assessing, and in this case denying, the internal consistency of the neo-virtue ethics position applied to the ethics of sports. Indeed, turning the issue upside down, we note how a philosophical analysis focused on virtues might still make a substantive claim objecting to the idea that gene doping would dehumanize sports activities. Savulescu, for instance, has argued that genetic enhancements will not dehumanize sports but may instead prove useful to rehumanize it by providing a further layer at which important human virtues, such as ingenuity, effort, and so on, can be expressed. One can further argue that it would run against the spirit of sport not to allow people to challenge their limits in new ways.²²

Questions about the proper ends and values of sport are, and will probably remain, a matter of discussion, and certainly more can be done to spell out what values are common to all sports and what are specific only to certain activities.²³ Nevertheless, beyond nonconfrontational analysis, confrontational philosophical tools—evidence and arguments²⁴—are necessary to assess the ethical permissibility of genetic enhancement in sports. In this regard, we agree with Häyry that “different approaches (or rationalities or methods of genethics) cannot be universally graded and put into order.”²⁵ From this, however, we do not draw the conclusion that “we have no philosophical way of telling once and for all whether we should or should not engage in procreative selection.”²⁶ As we have briefly shown here, the arguments Häyry would categorize as belonging to the rational tangibility approach seem to be superior to those put forward by supporters of the moral transcendence view, at least in this case. Are they thus right once and for all? Probably not. Nevertheless, we maintain, they are right insofar as someone will bring about new arguments and evidence as to show they are wrong. Moral disagreement in society will persist, no matter what philosophers may say. This, however, is not an indication of the fact that all views in the field of philosophical ethics are equivalent or incommensurable. Rather, it highlights how, in practice, we face a political problem. In this context, the deliberative democracy tools seem to be appropriate, as we sketch out in what follows.

A Moral Consensus to Everybody's Satisfaction?

The example of sports ethics suggests a practical problem that must be overcome if we want some sort of moral position to guide activity in a situation where we are faced with competing “rationalities.” This practical problem does not allow us simply to acknowledge that moral positions differ and then nonconfrontationally to concern ourselves with ironing out internal inconsistencies. Rather, it demands a shift in focus from classical philosophical ethics to the realm of political philosophy. Of course, it would be naïve to expect from Häyry's work a straightforward solution to the problem. Nor would it be legitimate to criticize Häyry's work for being a book in ethics and not in political philosophy. Nevertheless, the book's claims seem to be suspended between these two realms, and we are left wondering how the private considerations of individuals can play

a role in the solution of real-world political problems. As an example, consider the following argument from Häyry's book:

Philosophical considerations can show that some arguments are flawed and others open to discussion, but they cannot prove to *everybody's satisfaction* the rightness or wrongness of selection, cloning, or new treatments.²⁷

In this passage the kind of difficulties we were alluding to are manifest. Here Häyry is conflating two issues that should be kept distinct for analytical purposes. One issue is whether philosophical considerations, or arguments, can prove the rightness of anything at all. Quite another is whether they can prove it to everybody's satisfaction. The first is a question about moral relativism, the second one of political pluralism, that is, the claim that there exist different, and sometimes hard to reconcile, values in society. Let us tackle the first problem first. If Häyry's main claim were about moral relativism, then there would be several ways to spell it out that he does not attempt in his book. For instance, why is it impossible to say that something, say one of the genetic challenges, is ethically justifiable or not? Is it because there is no such thing as objective moral truth? Or, more simply, is it that, even if objective morality existed, it would be unreachable by ethical thinking? Whereas the former would be an ontological claim, the latter would be an epistemological one.

Häyry's position seems to be orthogonal to all these options. What he really seems to say is that there are different ways of doing ethics, none of them being illegitimate, at least as long as they are internally consistent and in some accordance with how things are in the world. As Coggon puts it, "a claim in support of simultaneous, non exclusive, yet competing rationality is a claim about the rightness of pluralism in ethics."²⁸ Accepting Häyry's position may mean that each of the three methods he outlines has contradictory claims that cannot be undermined by other approaches, thus giving rise to irresolvable disagreement. For example, does the fact that Sandel/Kass-like conclusions are drawn by appeals to traditional values render them invulnerable to critiques by the rational tangibility approach of Harris and Glover and vice versa? In the previous section about genetic enhancements in sports, we have shown this is not the case. However, Häyry does not provide an answer to this problem. He only shows how some important philosophers, more or less loosely associated with a school or method, have happened to disagree on specific foundational issues.

As for the second issue we mentioned, namely, political pluralism, the absence of agreement on a particular issue poses the question of how to reach a reasonable consensus, even if provisional or revisable, in the polis. People may maintain their private rationalities or rational moralities on the basis of philosophical arguments, but reasonable people may think that it is still worthwhile to reach a consensus in order to make decisions at the policy level. The question at stake, therefore, is not so much one of politeness (referring to the polite bystander view proposed by Häyry) but is one of indicating at what level each kind of rationality can effectively prove insightful and, as a consequence, at what level confrontations should take place. At least three levels ought to be distinguished here:

- 1) the nonconfrontational *philosophical* level described by Häyry, which is useful for assessing the internal consistency of each ethical position

- 2) the confrontational *philosophical* level, which takes into account other ethical perspectives (after they have been assessed for consistency with the first approach)
- 3) the decisionmaking *political* level, in which moral disagreement is dealt with in practice.

The genetic challenges as described by Häyry are public questions requiring, ideally, public answers. It is in this regard that we do not see Häyry's approach as exhaustive. Indeed, we believe that practical questions such as who should decide cannot be answered solely by reference to internally consistent rationalities. On the contrary, we think that, by following the route indicated by Häyry, we run the risk of ending up with a cornucopia of ethical perspectives, each internally consistent but providing mere philosophical amusement. If genetic challenges are to be taken seriously, as concrete instances of moral disagreement in the real world—as we think and as also Häyry seems to think—then certain real-world questions concerning whose interests are challenged and how these can reasonably be reconciled cannot be escaped or masked behind the polite façade of Häyry's nonconfrontational notion of rationality.

As an alternative, we suggest that the problem of "everybody's satisfaction" could be better addressed by engaging (confronting, if you like) the different ethical perspectives in a process of public reason giving in the spirit of deliberative democracy (DD), as defined by Gutmann and Thompson²⁹ and applied to genethics issues by Farrelly.³⁰ On this view "first-order" theories are ethical perspectives that seek to resolve moral disagreement by demonstrating that alternative theories and principles should be rejected. First-order theories "measure their success by whether they resolve the conflict consistently on their own term. Their aim is to be the single theory that resolves moral disagreement."³¹ In Häyry's book, first-order theories can be assimilated to the three ways he describes to deal with the genetic challenges. Whereas Häyry's polite bystander view claims that the validity of first-order theories should be assessed only internally and not confronting one theory with another, a fruitful way forward in the discussion of the genetic challenge is a second-order theory approach like that proposed by Gutmann and Thompson, which deals with the moral disagreement residual of first-order theories that cannot be resolved at a first-order level or by appeal to any such theory. DD seeks a resolution to the moral disagreement by adopting a dynamic conception of political justification, which is both morally and politically provisional.³²

Within this DD perspective, the resolution of first-order moral disagreement needs to respect the DD principles of reciprocity, publicity, and accountability and seeks a mutually binding (though provisional, therefore, at a specific time) decision, on the basis of mutually justifiable reasons.³³ Such a DD approach is not morally neutral, nor does it claim to be. Indeed, the quality of moral neutrality is both undesirable and unattainable according to the authors. If we accept this direction, we could read Häyry's polite bystander view as a claim about first-order theories, to which we could add as a natural, subsequent step our steering toward the realm of political philosophy.

How can a second-order DD approach build on the confrontational analysis of first-order theories applied to genetic enhancements in sports that we discussed above? The details of this process in the context of decisionmaking in sports

would, of course, need to be spelled out in practice, but in this regard we can say that the current process of decisionmaking in sports is unsatisfactory at best. Consider, for example, the ruling made by the International Association of Athletics Federations (IAAF) concerning the admissibility of the runner Caster Semenya to compete with women after charging her of not belonging properly to the category, which was neither transparent nor respectful of her privacy.³⁴ Furthermore, the reasons for Semenya's banning and subsequent readmission were never made public, though not respecting the criteria of publicity that is fundamental in the DD approach. In the context of decisions surrounding the ethical justifiability of a gene enhancement (or other kind of enhancement) practice in sports, we envisage a DD process that gives reasons to all the moral constituents involved in the field, where moral constituents is understood as all "those who are in effect bound by the decision, even though they may not have [but maybe they should have, as we argue] a voice in making them,"³⁵ therefore including at least, but not only, the athletes.

Conclusions

To sum up, our criticisms of Häyry's book were twofold. First, we raised a critical point concerning his nonconfrontational approach, as applied to an eighth genetic challenge, namely, genetic enhancement in sports. We demonstrated that ethical confrontation is still necessary in assessing the ethical justifiability of this practice. Second, we commented that Häyry's polite bystander view could, and indeed should, be brought forward to the political philosophy sphere and suggested DD tools as proposed by Gutmann and Thompson could be a fruitful direction to pursue when dealing with moral disagreement at the policy level. In making this claim, we are not saying that Häyry should have written a different book, only that our own view concerning the book requires that questions about genetic challenges need an interface with political philosophy and that, when this is taken into account, whole new perspectives open up that have not been considered by Häyry.

As a general remark on the book, we believe that Häyry's work is of fundamental importance for anyone who wishes to join the debate or just be clearly informed about the problems arising at the interface between genetics and society. The book is challenging for young philosophers as well, because it provokes them to enrich their professional toolkit and to look at the complexities of genetics with fresh eyes. It is in this spirit that we have tried to "articulate our own view" on the matter.

Notes

1. Häyry M. *Rationality and the Genetic Challenge: Making People Better?* Cambridge, UK: Cambridge University Press; 2010:2. Our italics.
2. Coggon J. Confrontations in "genethics": Rationalities, challenges, and methodological responses. *Cambridge Quarterly of Healthcare Ethics* 2011;20(1):46–55.
3. Harris J. The challenge of nonconfrontational ethics. *Cambridge Quarterly of Healthcare Ethics*, this issue, 204–215.
4. See note 1, Häyry 2010:238.
5. See note 1, Häyry 2010:43.
6. See note 1, Häyry 2010:50.

7. See note 1, Häyry 2010:238.
8. See note 1, Häyry 2010:239.
9. For such a discussion, see also Savulescu J. Doping true to the spirit of sport. *The Sydney Morning Herald* 2007 Aug 8, available at http://www.doping.au.dk/fileadmin/INHDR/Savulescu_Doping_true_to_the_spirit_of_sport.pdf (last accessed 20 Aug 2010); Tamburrini C. Are doping sanctions justified? A moral relativistic view. *Sport in Society: Cultures, Commerce, Media, Politics* 2006;9(2):199–211; available at <http://www.informaworld.com/10.1080/17430430500491264> (last accessed 22 Aug 2010).
10. For such an argument, see, for example, Miah A. Why not dope? It's still about the health. In: *Genetically Modified Athletes: Biomedical Ethics, Gene Doping and Sport*. London: Routledge; 2004:12–31.
11. World Anti-Doping Agency (WADA). World Anti-Doping Code 2009, available at <http://www.wada-ama.org/en/World-Anti-Doping-Program/Sports-and-Anti-Doping-Organizations/The-Code/> (last accessed 20 Aug 2010).
12. For a discussion on the weakness of the treatment/enhancement distinction, see Harris J. *Enhancing Evolution*. Princeton, NJ: Princeton University Press; 2007.
13. See note 11, WADA 2009:14. Our italics.
14. See note 10, Miah 2004.
15. See note 11, WADA 2009:8.
16. Kass L, ed. *Beyond Therapy: Biotechnology and the Pursuit of Happiness*. Washington, DC: The President's Council on Bioethics; 2003.
17. For a review of possible gene enhancement methods, see Wells DJ. Gene doping: The hype and the reality. *British Journal of Pharmacology* 2008;154:623–31; Wells DJ. Gene doping: Possibilities and practicalities. *Medicine and Sport Science* 2009;54:166–75.
18. See note 16, Kass 2003:124.
19. See note 16, Kass 2003:127.
20. Consider, for example, Oscar Pistorius's case and the surrounding ethical debate on disability and superability, Camporesi S. Oscar Pistorius, enhancement and post-humans. *Journal of Medical Ethics* 2008;34(9):639.
21. Kakuk P. Gene concepts and genetics: Beyond exceptionalism. *Science and Engineering Ethics* 2008;14(3):357–75.
22. For an argument to this effect, see note 9, Savulescu 2007.
23. For such a discussion, see Murray TH. Making sense of fairness in sports. *Hastings Center Report* 2010;40(2):13–5.
24. See note 3, Harris 2010.
25. See note 1, Häyry 2010:50.
26. See note 1, Häyry 2010:50.
27. See note 1, Häyry 2010:238.
28. See note 2, Coggon 2010.
29. Gutmann A, Thompson D. *Why Deliberative Democracy?* Princeton, NJ: Princeton University Press; 2004.
30. Farrelly C. Preimplantation genetic diagnosis, reproductive freedom and deliberative democracy. *The Journal of Medicine and Philosophy* 2009;34:135–54.
31. See note 29, Gutmann, Thompson 2004:126.
32. See note 29, Gutmann, Thompson 2004:132.
33. For a discussion of the criteria of reason acceptability, see note 29, Gutmann, Thompson 2004:Chap. V.
34. Camporesi S, Maugeri P. Caster Semenya: Sport, categories and the creative role of ethics. *Journal of Medical Ethics* 2010;36(6):378–9.
35. See note 29, Gutmann, Thompson 2004:135.