NEWS AND COMMENTARY

Enhancement is good for you!

Understanding the ethics of genetic enhancement

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The idea of using genetic techniques for enhancement—using genetic modification to improve upon the natural human condition—is not a new one. Moreover, thus far it has generally been the case that our ideas of what we might be able to do with genetic technology have predated the development of the technology itself. Kiuru and Crystal, in this issue, provide a timely and useful review of current scientific possibilities in the area of human enhancement by identifying which genes might be targets for genetic enhancement of physical and mental abilities, or cosmetic attributes.

The ethical issues associated with gene therapy and genetic enhancement are numerous and complex, and have been explored at some length in the bioethical literature. Although we do not have the scope to recapitulate the full debate over enhancement here,¹ a few points raised in this review invite further comment.

Kiuru and Crystal refer to a number of broad ethical issues concerning genetic modification that we have dealt with previously.² They go on to note that ‘enhancements that create inequality among people [are] ethically concerning’. The breadth of the assumptions implied by this statement belies its apparent simplicity: it may seem self-evident that ‘inequality’ is an undesirable thing, but what is really meant when we speak of equality and inequality?

The example given to illustrate ‘inequality’ is that of athletes who use doping in a situation where not all competitors have access (or are willing to break the ‘rules’ of the competition to gain access) to it. Ignoring the fact that athletes are usually already better equipped genetically and physically than most of us and that the specialized training

they receive increases (if not creates) inequality; it seems that the ‘inequality’ being referred to here is the additional advantage gained by illicit drug use. But this is unethical not so much because it creates inequality *per se*, but because it is necessarily clandestine as nobody knows who is or is not using drugs, and this breaches the rules of the sport and is unfair to those who obey the rules (see page 27 in Harris).¹ Contrast this with training, which is in principle available to all, but in fact is even less available to all than drugs would be. Training (which can include personal trainers, dieticians, physiotherapy, high altitude training, specialized equipment and time off work) can be very expensive indeed. It is elitist and notoriously available only to those who can afford it or who can find sponsorship. Athletes have different natural abilities and their different training regimes may be of varying efficacy, but training is considered fair because it is permitted by the rules; all are permitted to attempt to gain access to training. The result is, not complete equality, but a range of outcomes that provides variation and the excitement of uncertainty. Sport would be a dull pastime, indeed if there was absolute equality and every competition resulted in a tie.^{3–5}

In sport, as indeed in employment, we are talking always about procedural justice or fairness. A level playing field perhaps, but not a level training ground, nor a level genetic endowment. What matters is that there is no unfair discrimination and that we have rules that apply impartially to all as well as transparency.⁶ The key to procedural fairness, which is all that can be realistically (or ideally?) achieved here, is that the same enhancement opportunities are, in principle, available to everyone.

Now, it may be that procedural justice in terms of access to enhancement technology will be difficult to achieve, just as it is in access to education or health care, but this is a problem that will not be solved by banning enhancement techniques and technologies.

Unlike drugs in sport, however, there are many valid reasons to seek out enhancements other than to gain an edge over one’s competitors. Enhancements are a benefit because they are good for the enhanced individual independently of any competitive advantage they also confer.¹ Put another way, at an individual level, a good is still a good whether it brings you level with others, sets you ahead or leaves you still behind but better off than you were. In the wider context of justice, we should perhaps prioritize the distribution of goods so that they benefit most of those who are least well off,⁷ but from an individual perspective, it may matter less, or not at all, what relative or positional effect an enhancement has, so long as it is still a benefit in some form.

This, as has been previously pointed out (see pages 44–46 in Harris¹ and in Chan and Harris^{2,8}), also renders the distinction between treatment and enhancement less than meaningful at an individual level. Although Kiuru and Crystal seem to accept this, they also suggest that ‘regulatory agencies may set a different standard if enhancement rather than therapy is the goal’. This is quite possibly the case, but whether the regulatory agencies would be justified in doing so is another matter. Setting different standards for genetic ‘enhancement’ and gene ‘therapy’ would pose a number of practical, to say nothing of philosophical, difficulties: what do we define as a disease? Gene therapy is usually suggested as a treatment for severe, inherited diseases such as muscular dystrophy and cystic fibrosis; but what about preventative medicine, such as genetic therapy or enhancement that would reduce our susceptibility to cancer, or to the depredations of old age, and consequently enhance our ‘normal’ lifespans?

The treatment/enhancement distinction is in many senses, including the regulatory, a red herring. In the case of both therapy and enhance-

ment (even if a valid distinction can be drawn, which is questionable in itself), the risks of the procedure should be weighed against the benefits to determine whether it is worth pursuing. The real question that regulatory agencies need to ask is not whether a procedure is best defined as therapy or enhancement, but whether the benefit it will produce is worth the risks incurred and whether or not it is safe, or morally permissible, to deny the individual the liberty to make this decision for themselves. In many cases where there is any appreciable degree of risk, this balance may favour the treatment of severe disease and disability only; the benefit of an enhancement that produces some trivial improvement to the quality of an already good life might be judged less valuable than an intervention that saves a life or dramatically ameliorates a genetic disease. Arguably, it is the individual who should make this calculation and the best policy is to do this calculation for each case on its own merits rather than to draw lines based on arbitrary distinctions.

The question then remains to be answered: who makes these judgments and how? It cannot be a matter for either science or society alone to decide. The transition process of new technologies from scientific principle to clinical (and perhaps commercial) practice necessitates discourse involving all stakeholders; scientists, philosophers, policy-makers, practitioners and the public. Research into gene therapy and genetic enhancement should therefore be subject to proper ethical scrutiny, not simply to 'maintain the principles of bioethics', which Kiuru and Crystal treat as unproblematically established (but neither the principles nor their meaning, nor their scope, nor a rational policy for maintaining them are generally agreed!), but to ensure accountability at all levels, to safeguard the public interest and balance potential competing interests as well as to lessen suffering, increase fulfilment and enable people to make their lives better. ■

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- 8 Chan S, Harris J. In support of human enhancement. *Studies in Ethics, Law and Technology* 2007; **1** (December).