

# New breeds of humans: the moral obligation to enhance\*



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## Abstract

This paper argues that we have a moral obligation to enhance human beings. It is argued that if one is committed to the moral obligation to treat and prevent disease, one is also committed to genetic and other enhancement in so far as this promotes human well-being. It is argued that this is not eugenic but expresses our fundamental human nature: to make rational decisions and to try to improve ourselves. To be human is to strive to be better.

**Keywords:** *abortion, enhancement, eugenics, genetic selection, genetics, wellbeing*

## Introduction

The genophobe claims that it is our environment, or culture, that defines us, not genetics. But a quiet walk in the park demonstrates the power of that great genetic experiment: dog breeding. It is obvious that different breeds of dog differ in temperament, intelligence, physical ability and appearance. No matter what the turf, a doberman will tear a corgi to pieces. Of course, you can debilitate a doberman through neglect and abuse. And you can make him prettier with a bow. But you will never turn a chihuahua into a doberman through grooming, training and affection. Dog breeds are all genetic – for over ten thousand years we have bred some 300–400 breeds of dog from early canids and wolves. The Saint Bernard is known for its size, the greyhound for its speed, the bloodhound for its sense of smell. There are freaks, hard workers, vicious aggressors, docile pets, and ornamental varieties. These characteristics have been developed by a crude form of genetic selection – selective mating or breeding.

Today we have powerful scientific tools in animal husbandry – genetic testing, artificial reproduction and cloning are all routinely used in the farming industry to create the best stock. Scientists are now starting to look at a wider range of complex behaviours. Changing the brain's reward centre genetically may be the key to changing behaviour.

Gene therapy has been used to turn lazy monkeys into workaholics by altering the reward centre in the brain (Liu *et al.*, 2004). In another experiment, researchers used gene therapy to introduce a gene from the monogamous male prairie vole, a rodent which forms lifelong bonds with one mate, into the brain of the closely related but polygamous meadow vole (Lim *et al.*, 2004). Genetically modified meadow voles became monogamous, behaving like prairie voles. This gene, which controls a part of the brain's reward centre different from that altered in the monkeys, is known as the vasopressin receptor gene. It may also be involved in human drug addiction.

Selective mating has been occurring in humans ever since time began. Facial asymmetry can reflect genetic disorder. Smell can tell us whether our mate will produce the child with the best resistance to disease. We compete for partners in elaborate mating games and rituals of display which sort the best matches from the worst. As products of evolution, we select our mates, both rationally and instinctively, on the basis of their genetic fitness – their ability to survive and reproduce. Our goal is the success of our offspring.

With the tools of genetics, we can select offspring in a more reliable way. The power of genetics is growing. Embryos can now be tested not only for the presence of genetic disorder

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(including some forms of bowel and breast cancer), but also for less serious genetic abnormalities, such as dental abnormalities. Sex can be tested for too. Adult athletes have been genetically tested for the presence of the angiotensin converting enzyme (ACE) gene to identify potential Olympic athletes. Research is going on in the field of behavioural genetics to understand the genetic basis of aggression and criminal behaviour, alcoholism, anxiety, antisocial personality disorder, maternal behaviour, homosexuality and neuroticism.

While at present there are no genetic tests for these complex behaviours, if the results of recent animal studies into hard work and monogamy apply to humans, it may be possible in the future to genetically change how we are predisposed to behave. This raises a new question.

## Should we decide what breed of humans to create?

Some people in society believe that children are a gift, of God or of Nature, and that we should not interfere in human nature. Most people implicitly reject this view – we screen embryos and fetuses for diseases, even mild correctable diseases. We interfere in Nature or God's will when we vaccinate, provide pain relief to women in labour (despite objections of some earlier Christians that these practices thwarted God's will) and treat cancer. It is nevertheless true that we believe it is a parent's duty to unconditionally love and accept a child, even if that child is involved in an accident and is left horribly disabled.

The reason that genetic selection is not ingratitude and intolerance for the gift of life is because the life in question is not yet the life of a child. Destruction of early human embryos and fetuses is not infanticide. People in Western societies have voted with their feet about the moral status of early human life. One hundred thousand abortions per year in the UK speak to the value of early human life. If we were really serious that embryos were people, we would force couples undergoing IVF to donate spare embryos to other infertile couples, just as we force couples who do not or cannot care for their children to have them adopted by other couples. But of course, most people do not really believe embryos are children.

More importantly, no one would object to the treatment of disability in a child, if it were possible. Why, then, not treat the embryo with genetic therapy if that intervention is safe? Even though not a child, it might later be a child. And better that child without disability than with disability. This is no more thwarting God's will than giving antibiotics is.

## The moral obligation to enhance our children

Many people would accept my claim that there is a moral imperative to treat and prevent disease. A parent who knowingly failed to protect his or her child from contracting HIV through a simple and safe intervention would be considered guilty of a moral crime. Many people will accept genetic selection to avoid disease. Many may even come to accept germline gene therapy, if it is safe, under the moral imperative to treat disease and promote health.

I believe the same moral obligation exists to enhance our children's lives and opportunities.

## What matters: well-being

It is the goodness of health that drives a moral obligation to treat or prevent disease. Being healthy enables us to lead a good life. But health is not intrinsically valuable. It is instrumentally valuable – valuable as a resource that allows us to do what really matters, that is, lead a good life.

What constitutes a good life is a deep philosophical question. According to hedonistic theories, what is good is having pleasant experiences and being happy. According to desire fulfilment theories and economics, what matters is having our preferences satisfied. According to objective theories, certain activities are good for people – developing deep personal relationships, developing talents, understanding oneself and the world, gaining knowledge, being a part of a family, and so on. We need not decide on which of these theories is correct to understand what is bad about ill health. Disease is important because it causes pain, is not what we want and stops us engaging in those activities that give meaning to life. Sometimes people trade health for well-being – mountain climbers take on risk to achieve, smokers sometimes believe that the pleasures outweigh the risks of smoking, and so on. Life is about managing risk to promote well-being.

But if it is well-being not health that is intrinsically valuable we can see why human enhancement can become a moral obligation. Many of our biological and psychological characteristics profoundly affect how well our lives go. In the 1960s, Walter Mischel conducted impulse control experiments where four-year-old children were left in a room with one marshmallow, after being told that if they did not eat the marshmallow, they could later have two. Some children would eat it as soon as the researcher left, others would use a variety of strategies to help control their behaviour and ignore the temptation of the single marshmallow. A decade later, they re-interviewed the children and found that those who were better at delaying gratification had more friends, better academic performance and more motivation to succeed. Whether the child had grabbed for the marshmallow had a much stronger bearing on their standardized attainment test (SAT) scores than did their IQ (Mischel *et al.*, 1988).

Impulse control has also been linked to socio-economic control and avoiding conflict with the law. The problems of a hot temper can include life in prison.

Shyness too can greatly restrict a life. One newspaper story was published about a woman who blushed violet every time she went into a social situation. This led her to a hermitic, miserable existence. She eventually had the autonomic nerves to her face surgically cut. This revolutionized her life and had a greater effect on her well-being than the treatment of many diseases.

Intelligence, of many kinds: memory, temperament, patience, empathy, a sense of humour, optimism and just having a sunny temperament can profoundly affect our lives. All of these characteristics will have some biological and psychological basis capable of manipulation with technology.

If we have an obligation to treat and prevent disease, we have an obligation to try to manipulate these characteristics to give an individual the best opportunity of the best life.

Evolution was previously about the selection of genes according to environment which conferred the greatest chance of survival and reproduction. Evolution would select a tribe which was highly fertile but suffered great pain the whole of their lives over another tribe which was less fertile but suffered less pain. Medicine has changed evolution – we can now select individuals who experience less pain and disease. The next stage of human evolution may be rational evolution, where we select children who not only have the greatest chance of surviving, reproducing and being free of disease, but who also have the greatest opportunities to have the best lives. Evolution was indifferent to how well our lives went. We are not. We want to retire, play golf, read and watch our grandchildren have children.

Enhancement is a misnomer. It suggests luxury. But enhancement is no luxury. In so far as it promotes well-being, it is the very essence of what is necessary for a good human life.

Once technology affords us with the power to enhance our and our children's lives, to fail to do so will be to be responsible for the consequences. To fail to treat our children's disease is to harm them. To fail to prevent them getting depression is to harm them. To fail to improve their physical, musical, psychological and other capacities is to harm them, just as it would be to harm them if we gave them a toxic substance that stunted or reduced these capacities.

There are other arguments for enhancement. It may benefit parents and society. Consistency also requires it. We laud parents who sacrifice themselves to provide the best educational opportunities for their children, or who attempt to produce well-behaved good children. But the environment only acts to affect our biology. If we accept environmental manipulations, by force of consistency we must accept genetic or other biological manipulations that are safe and have the same effects. And biological enhancements may ultimately provide much greater increases in our children's opportunities than the school we send them to.

Elsewhere, it has been argued that we should allow performance enhancements in sport (Savulescu *et al.*, 2004). One of the major objections to enhancement is that it is against human nature. Common alternative phrasings are that enhancement is tampering with our nature, that it is hubris, or an affront to human dignity. I believe that what separates us from other animals is our rationality, our capacity to make normative judgements and act on the basis of reasons (Savulescu, 2003). When we make decisions to improve our lives by biological and other manipulations, we express our rationality and express what is fundamentally important about our nature. And if those manipulations improve our capacity to make rational and normative judgements, they further improve what is fundamentally human. Far from being against the human spirit, such improvements express the human spirit.

Another familiar objection to enhancement is that enhancements will have self-defeating or other adverse social

effects. A typical example is increase in height. If height is socially desired, then everyone will try to enhance the height of their children at great cost to themselves and the environment (as taller people consume more resources), with no advantage in the end since there will be no relative gain.

If a purported manipulation does not improve well-being or opportunity, there is no argument in favour of it. In this case, the manipulation is not an enhancement. In other cases, such as enhancement of intelligence, the enhancement of one individual may increase that individual's opportunities only at the expense of another. So-called positional goods are goods only in a relative sense.

In my opinion, many enhancements will have both positional and non-positional qualities. Intelligence is good not just because it allows an individual to be more competitive for complex jobs, but because it allows an individual to process information more rapidly in her own life, and to develop greater understanding of herself and others. These non-positional effects should not be ignored.

Nonetheless, if there are significant social consequences of enhancement, this is of course a valid objection. But it is not particular to enhancement – there is an old question about how far individuals in society can pursue their own self-interest at cost to others. It applies to education, health care, and virtually all areas of life. It requires a theory of justice to resolve.

Not all enhancements will be ethical. The critical issue is that the intervention is expected to bring about more benefits than harms to the individual. It must be safe and there must be a reasonable expectation of improvement. Some of the other features of ethical enhancements are summarized in **Table 1**.

## Conclusion

Many will argue that such a proposal is eugenic. Eugenics was the movement early last century which aimed to use selective breeding to prevent degeneration of the gene pool by weeding out criminals, those with mental illness and the poor, on the false belief that these conditions were simple genetic disorders. The eugenics movement had its inglorious peak when the Nazis moved beyond sterilization to extermination of the genetically unfit.

What was objectionable about the eugenics movement, besides its shoddy scientific basis, was that it involved the imposition of a state vision for a healthy population and aimed to achieve this through coercion. The eugenics movement was not aimed at what was good for individuals, but rather at what benefited society. Modern eugenics in the form of testing for disorders, such as Down's syndrome, occurs very commonly but is considered acceptable because it is voluntary, gives couples a choice over what kind of child to have and enables them to have a child with the greatest opportunity for a good life.

The critical question to ask in considering whether to alter some gene related to complex behaviour is: would the change be better for the individual? Is it better for the individual to have a tendency to be lazy or hardworking; monogamous or polygamous? These questions are difficult to answer.

**Table 1.** Ethical enhancement.**What is an ethical enhancement?**

It is in the person's interests  
 It is reasonably safe  
 It increases the opportunity to have the best life  
 It promotes or does not unreasonably restrict the range of possible lives open to that person  
 It does not harm others directly through excessive costs of making it freely available (but balance against the costs of prohibition)  
 It does not confer an unfair advantage  
 It does not place that individual at an unfair competitive advantage with respect to others, e.g. mind reading  
 It does not reinforce or increase unjust inequality and discrimination – economic inequality, racism (but balance the costs of social/environmental manipulations against biological manipulations)

**What is an ethical enhancement for a child?**

All the above plus:  
 the intervention cannot be delayed until the child can make its own decision  
 the intervention is plausibly in the child's interests  
 the child consents if competent

There will be cases where some intervention is plausibly in a person's interests: empathy with other people, capacity to understand oneself and the world around, memory. One quality is especially associated with socio-economic success and staying out of prison: impulse control. If it were possible to correct poor impulse control, we should correct it. Whether we should remove impulsiveness altogether is another question.

Our future is in our hands now, whether we like it or not. But by not allowing enhancement and control over the genetic nature of our offspring, we consign a person to the natural lottery, and now, by having the power to do otherwise, to fail to do otherwise is to be responsible for the results of the natural lottery. We must make a choice: the natural lottery or rational choice. Where an enhancement is plausibly good for an individual, we should let that individual decide. And in the case of the next generation, we should let parents decide. To fail to allow them to make these choices is to consign the next generation to the ball and chain of our squeamishness and irrationality.

Enhancement is already occurring. In sport, human erythropoietin boosts red blood cells. Steroids and growth hormone improve muscle strength. Many people seek cognitive enhancement – nicotine, Ritalin, Modavigil, caffeine. Prozac, recreational drugs and alcohol all enhance mood. Viagra is used to improve sexual performance.

And of course mobile phones and aeroplanes are examples of external enhancing technologies. In the future, genetic technology, nanotechnology, and artificial intelligence may profoundly affect our capacities.

Will the future be better or just disease-free? We need to shift our frame of reference from health to life enhancement. What matters is how we live. Technology can now improve that. We have two options: (i) **Intervention**: this includes treating disease, preventing disease, supraprevention of disease, protection of well-being, and enhancement of well-being. (ii)

**No intervention**, and to remain in a state of nature – no treatment or prevention of disease, no technological enhancement.

To most of us, the choice is obvious. To be human is to be better. Or, at least, to strive to be better.

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**References**

- Lim MM, Wang Z, Olazabal DE *et al.* 2004 Enhanced partner preference in a promiscuous species by manipulating the expression of a single gene. *Nature* **429**, 754–757.
- Liu Z, Richmond BA, Murray EA *et al.* 2004 DNA targeting of rhinal cortex D2 receptor protein reversibly blocks learning of cues that predict reward. *Proceedings of the National Academy of Sciences of the USA* **101**, 12336–12341.
- Mischel W, Shoda Y, Peake PK 1988 The nature of adolescent competencies predicted by preschool delay of gratification. *Journal of Personality and Social Psychology* **54**, 687–696.
- Savulescu J 2003 Human-animal transgenesis and chimeras might be an expression of our humanity. *American Journal of Bioethics* **3**, 22–25.
- Savulescu J, Foddy B, Clayton M 2004 Why we should allow performance enhancing drugs in sport. *British Journal of Sports* **38**, 666–670.

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