

Creating Better People?

Some Considerations on Genetic Enhancement

Rev. Grzegorz Holub, SDB

Abstract. Genetic engineering promises to change the human condition by changing certain human characteristics. Why not take control of such changes and secure positive outcomes, making use of our progressing knowledge about human genetic make-up and our increasingly sophisticated skills? This paper elaborates the meanings of the word “change,” a cornerstone of the enhancement debate, focusing not on technicalities of genetic engineering but on philosophical implications of its implementation. The paper then turns to some of the complexities and difficulties of the debate. Finally, it takes up a strictly philosophical investigation of what we mean by “change” as far as a basic structure of the human being (the human person) is concerned, and examines what conclusions can be drawn for genetic enhancement. *National Catholic Bioethics Quarterly* 10.4 (Winter 2010): 723–740.

Change seems to be one of the basic features of human life. From the very first moment of our existence, we have been undergoing many changes in very complex and multifaceted ways. Change affects all dimensions of our life: biological, psychological, and spiritual. We experience changes in our body, in the functioning of our perceptual and cognitive abilities, in our understanding of ourselves and the world around us, and in our experiences of the beautiful and the good. Change is

Rev. Grzegorz Holub, SDB, PhD, is an assistant professor of philosophy and bioethics at the Pontifical University of John Paul II in Kraków, Poland. The author thanks Elisabeth Gowans, Stephen Barrie (Anscombe Bioethics Centre in Oxford), and Adrian Reimers (University of Notre Dame) for their helpful comments and suggestions.

the factor by virtue of which something is temporal. We live in time, and the passing of time causes modifications in our existence. Not undergoing change would be a symptom of abnormality, at least in a human being. This is so obvious that we do not pay much attention to the fact.

A strange developmental case can remind us about the unavoidability of change. Recently the public was informed about a sixteen-year-old girl who looks like an eleven-month-old infant because of an atypical disease, a kind of developmental disorganization. Her muscles, bones, brain, and other organs stopped developing into more mature forms, which hindered further psychological and spiritual development. She is able to perform very basic actions and only to a limited extent.¹ Thus we can say that a lack of developmental change amounts to a malady.

Human activity involves constant change. Almost any action is done with an intent to modify something or to stop an unwanted modification. We usually qualify our action as improvement, reorganization, development, enhancement, or such. An action is basically intended to make something worse into what is better, something weak into what is strong, something negative into what is positive. That is true about our conscious endeavors, although we can cautiously claim the same about unconscious ones as well. To change and to be subject to change seem to be deeply ingrained into our human existence.

Genetic enhancement brings with it the promise of improving the human condition by changing some human characteristics via genetic engineering. If everything changes in our life and tends toward other states (sometimes better ones and sometimes worse), why not take that in our human hands and secure positive outcomes, making use of our progressing knowledge about human genetic make-up and our increasingly sophisticated acquired skills?

The discussion touching on this topic is long and well advanced. This paper, first, will elaborate the connected meanings of the word “change,” which seems to be a cornerstone of the genetic enhancement debate. We will be interested less in the technicalities of genetic engineering as a scientific realm than in possible philosophical implications stemming from its implementation. It will then show some of the complexities and difficulties of the debate. Finally, it will take up a strictly philosophical investigation of what we mean by “change” as far as a basic structure of the human being (person) is concerned, and what conclusions we can draw from this for the idea of genetic enhancement.

¹Richard F. Walker et al., “A Case Study of ‘Disorganized Development’ and Its Possible Relevance to Genetic Determinants of Aging,” *Mechanisms of Ageing and Development* 130.5 (May 2009): 352–353. The authors note that this young woman’s “neurological and cognitive development is minimal. She can recognize her parents, look at her mirror image, vocalize for attention and occasionally smile/laugh socially. However, she consistently fails to meet 80% performance goals set by her Individualized Education Program (IEP) team. Instead she routinely achieves 40%–60% success in completing simple tasks such as: imitating gestures such as clap hands, raise hand, shake hands, etc.; following one step directions, e.g., ‘come here’, ‘touch’, ‘look at’, etc.; identifying pictures of herself and of her classmates; matching shaped objects to correct slots with verbal prompts; [and] pulling off jacket when one sleeve has been removed and giving it to the teacher.”

Discussion Points

Health and the Proper Aims of Medicine

In any discussion about improving the human condition, it is first necessary to introduce a distinction between curing and enhancing. Curing activity is strictly connected with a disease of one kind or another, whereas enhancement entails “‘correcting’ a feature that is undesirable or falls below some norm.”² This distinction seems to be clear cut, so we should be able to distinguish easily a therapy from an optional and extraordinary activity, although both can use the same tools and follow similar medical procedures. Curing occurs in the case of a given disease, and its object is to stop the progression of a pathological change; in enhancement, a change is effected to make a given aspect of human life better. Curing falls strictly in the realm of medicine, whereas enhancement goes beyond standard medical practice in the traditional sense.

The problem with this distinction is that there is no single, authoritative definition of human health. The debate on this topic has been under way for years. We can point to at least two different positions: One perceives health as freedom from disease and other maladies. The other interprets health in the manner of the World Health Organization, namely, as “a state of complete physical, mental, and social well-being.”³ The first position is modest and does not aspire to include all positive possibilities in the state of being healthy. It includes the prevention and elimination of pathological changes in a human body. The second position goes further, setting out a positive agenda that goes beyond combating disease and includes the promotion of human well-being and fulfillment.

This second definition of health opens up a route to interventions that exceed those of traditional medicine. “Complete physical, mental, and social well-being” requires more than what conventional medicine offers, even in a highly developed society. All in all, it allows us to perceive medical undertakings as tools to obtain human happiness and fulfillment.

The first definition of health—freedom from disease—may share some of the same ambiguity, however. The definition reflects an understanding of health restricted to curative and preventive actions, but preventive actions can sometimes come very close to enhancement activities. Vaccines, for example, are considered pure preventive medical interventions, but they can also be seen as a kind of enhancement. When we vaccinate an organism, we strengthen its resistance to some pathogens, giving it a kind of immunological resistance that it does not possess on its own. We hope one day to be able to change parts of the DNA to create immunities to dangerous

²Robert Wachbroit, “Genetic Engineering. Human Genetic Engineering,” in *Encyclopedia of Bioethics*, 2nd rev. ed., ed. Warren T. Reich, vol. 2 (New York: Simon and Schuster Macmillan, 1995), 937.

³Erik Parens, “Is Better Always Good? The Enhancement Project,” in *Enhancing Human Traits: Ethical and Social Implications*, ed. Erik Parens (Washington, DC: Georgetown University Press, 1998), 3.

diseases like HIV/AIDS and cancer.⁴ These will be preventive actions, of course, but they will also constitute radical enhancement, because these immunities do not belong to “normal species functioning” or “species-typical functioning.”⁵

The notions of curing and enhancing can easily overlap. Change that takes place for curing and change that takes place for enhancement can sometimes be counted as the same thing. We need a distinction between these two notions of change for the practical purpose of knowing the limits of the professional obligations of medicine. We need it because otherwise medicine can easily be conceived as an all-purpose activity, pressured to advance human happiness and burdened with a task of leading people to a bright future. As Eric Juengst warns, “Biomedicine should restrict its ambitions to the sphere of bodily dynamics, which it knows something about, and leave the sphere of social dynamics in the hands of the other human values specialists: parents, educators, preachers, counselors, accountants, and coaches.”⁶

Semi-conclusion 1: Curing-change and enhancing-change cannot be precisely distinguished unless we come up with a clear understanding of health and point to the proper aims of medicine.

A Clear Concept of Human Nature

Two additional possible undertakings can be considered here, namely, improvement-change and enhancement-change. Let us assume that the first one aims at bringing to completion all that is already given but without transgressing a limit that we can call “human nature.” The second is directed beyond the barrier of “human nature”; it clearly aims at an intensification of personal characteristics. Although this distinction is prone to various objections, let us take it up for the current section.

Change-enhancement is typical of all kinds of artificial machines and computers. We gradually produce better versions of them because our knowledge and our technological capabilities increase and allow that progress. Also, we really need these improvements to assist or even replace our human endeavors. In a sense, they do what we are intended to do but with much greater efficiency. They make our lives easier and enable us to focus on more sophisticated projects. While technological advancement is worthwhile in itself, especially in quotidian applications, such replacements are not always equally appreciated. For example, we usually prefer to attend a live concert or play than to listen to or watch a recording of the performance on a CD or DVD. We

⁴This change of DNA presupposes that we already know which part of it, namely, which genes, are responsible for cancer or can give us an immunity to HIV/AIDS. Only then can we employ some techniques of recombinant DNA technology to create a modified or improved DNA in which “bad” genes have been replaced with “positive” ones. See James B. Tubbs Jr., *A Handbook of Bioethics Terms* (Washington, DC: Georgetown University Press, 2009), 142–143. We do not yet possess an exhaustive knowledge concerning the first aspect, so we cannot proceed successfully with this kind of recombination.

⁵John Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton and Oxford: Princeton University Press, 2007), 22.

⁶Erik T. Juengst, “What Does Enhancement Mean?” in *Enhancing Human Traits: Ethical and Social Implications*, ed. Parens, 43.

place more value on music and art that are produced live than on those that rely on technology. Here a kind of borderline appears, between what results from an advance in technology and the direct fruit of human genius, creativity, and skill.

Let us consider the effect on human individuals of genetic enhancement that is designed to make them perform certain activities better. Their personal characteristics are to be essentially upgraded; thus, the limits of their “human nature” can be transgressed. For example, consider a genetically modified musician whose performance is so outstanding that no other, not even an experienced and well-trained musician, can keep up with him. Or a genetically modified painter who advances a new style, striking and fascinating at the same time.⁷ Would people really value these artificially made artisans more than hard-working artists? What is actually at stake in such a comparison? Is excellence of music or art the highest objective, or is something else?

Michael Sandel touches on a similar issue concerning athletics. He inquires into the goal of athletic competition. Is it a feeling of excitement and amusement on the part of viewers and fans? If it is, then any rule governing competition is arbitrary and can be changed. If sport basically aims at entertaining people, all the rules can be set to meet this goal. No definite restrictions can be set on what is going on in a game, because what really matters is the delivery of exciting moments to their seekers. Players can use whatever means are possible to produce an amusing spectacle. Specifically, they can freely employ performance-enhancing drugs and genetic alterations.⁸

This description of the world of sport touches on certain realities. Sometimes it seems that sport is a huge industry in which, on the one hand, making money is a real priority, and on the other, people look only for thrills and excitement. Nevertheless, we somehow know that both are an inadequate description of what sport itself is about.

To make sport entirely into a spectacle is to forfeit something essential to the ideal of sport itself. Sandel puts it this way: “The descent of sport into spectacle is not unique to the age of genetic engineering. But it illustrates how performance-enhancing technologies, genetic or otherwise, can erode the part of athletic and artistic performance that celebrates natural talents and gifts.”⁹ Thus sport and, as mentioned above, other artistic activities are naturally intended to display and celebrate natural human talents and gifts. The rules and regulations are designed to create a place where people can witness the display of human abilities to the

⁷Let us assume that at some time in the future we will be able to detect and recombine the genes responsible for such activities. Let us assume also that this procedure will be successful in changing, like the predispositions to music and art, the speed of acquiring suitable skills.

⁸Michael J. Sandel, *The Case Against Perfection: Ethics in the Age of Genetic Engineering* (Cambridge, MA: Harvard University Press, 2007), 43.

⁹Ibid., 44.

furthest extent that they can be naturally developed, and draw esthetic and spiritual satisfaction from them.

The satisfaction is not a feeling of sheer excitement or amusement. It is not the result of witnessing an achievement brought about in any way whatsoever, including an artificial one. Aesthetic and spiritual satisfaction is not possible when we see a semi-artificial artist or sportsman in action. The use of artificial or semi-artificial processes can be practical or entertaining, but we cannot admire them. Indeed, they may give us a feeling of usefulness or relaxation, but not of deep satisfaction. Such processes, even those that are highly advanced, are out of touch with our human abilities, and they inevitably give us a feeling of something not whole, or unified, but heterogeneous.

It is possible, however, to experience deep satisfaction when we meet people performing very sophisticated activities that do lie within the limits of our human condition or our human nature. In those extraordinary individuals we contemplate who we could possibly have become in different life circumstances. In a sense, sport and art are spiritually uplifting because we gain that feeling of our preciousness and dignity as human beings, and we can be easily led to declarations like “I can do more” or “I should do more.” People who admire artists and sportsmen are often also those who practice art and sport themselves.

Change-improvement appears here as a concept that takes up more adequately what art and sport are about. These activities of course tend to display beauty or physical excellence, but they do it out of what is given. They are the ways in which these potentialities are brought out and exposed. Art and sport presuppose latent abilities, and via systematic efforts tend to improve them to the level of higher advancement. That advancement still must remain within a boundary of human-ness if it is to count as the natural and not the artificial. The activities of sport and art show unequivocally that we do not want to replace the improved natural ability with an artificial one, even highly advanced. Although there are many areas of our life in need of technological and artificial progress, we are unwilling to permanently change what is natural in ourselves to what is unnatural. This is because we are unwilling to lose a part of ourselves and replace it with something that is artificial and heterogeneous to us.

We constantly undergo change and even provoke it, often employing much knowledge and skill. But at the same time we want change as an external instrument or as an improvement of what we already are, not as an intrinsic effect. More than the change, we value something else that is essential to our human-ness. We wish to keep our human nature intact. And that is where the natural borderline for any intervention can be drawn.

Semi-conclusion 2: We value our human nature and want to cherish it. Discussions of any kind of enhancement cannot be successfully carried out without a clear concept of human nature.

Change as Progress or Regress

Let us look at the outcome of a possible enhancement-change connected with the prevention of some diseases of old age via genetic engineering. Nowadays this type of enhancement is limited, but the ongoing development of genetics might increase

the range of our interventions, especially if regenerative treatments can be combined with switching off the ageing process in cells. The probable result of this enterprise on a grand scale will be the prolonging of human life. As John Harris notices, it is not normal for humans to live beyond 100 years. According to our knowledge, no one has lived longer than 122 years. However, some believe that the first person who will live to 150 years is already among us, and some have gone so far as to claim that the first thousand-year-old person is alive now.¹⁰ If this is credible, it means that the changes put gradually in place by genetic enhancement can burst the normal boundaries of human life. A new species may emerge from *Homo sapiens*, so-called transhumans. These creatures will be a new species because, much like genetically modified organisms, they will be free of the typical constraints that mark human life. Furthermore, the species of transhumans, according to Harris, will represent an important step toward immortality. As Harris puts it, “If we could switch off the aging process, we could then ... ‘write immortality into the genes of the human race.’”¹¹

The change that is involved in the prolonging of human life looks attractive, and we may be tempted to say that it really fulfills our deep-seated expectations. Nevertheless, being immortal will bring some problems. It will change irreversibly the structure of social life, as Francis Fukuyama suggests.¹² In addition, it may radically slow down human reproduction, and hence the influx of new ideas, which is usually associated with the coming of new generations.

If we are talking about the emergence of a new human-like species, we should be able to envisage some general characteristics of its individuals. People living longer will be of the same kind as we are, with the exception of being immune to some deadly diseases. We should of course consider whether the change in our bodily constitution would undermine what we now consider normal life. Our biological existence is closely connected with a psychological sphere. Hence, these two realms of human life need to be compatible in the possible project of prolonging our lives. Unless they are, we might experience boredom, a kind of tiredness, a lack of creativity, a feeling of being “not-at-home” with the current generation, and so on.

¹⁰Harris, *Enhancing Evolution*, 52. This kind of unrealistic speculation—carried out for example by Aubrey de Gray—reveals that some in the genetic enhancement debate accept science fiction scenarios.

¹¹Ibid., 60.

¹²Francis Fukuyama argues that “the prolongation of life through biotechnology will have dramatic effects on the internal structure of societies. ... The most important of these has to do with the management of social hierarchies.” *Our Posthuman Future: Consequences of the Biotechnology Revolution* (New York: Picador, 2002), 64. Many generations of active people living in the same society will be contending for power and various positions. In this contest the most advantaged will be those living and competing there for decades. As Fukuyama continues, “Political, social, and intellectual change will occur much more slowly in societies with substantially longer average life spans. With three or more generations active and working at the same time, the younger age cohorts will never constitute more than a small minority of voices clamoring to be heard, and generational change will never be fully decisive” (66).

Procedures aimed at extending our lives should encompass both dimensions, namely, the realms of the body and the psyche.

Change here is conceived too broadly. It can be made up of different actions touching on different dimensions of our life. We do not know what immortality or even excessive longevity means. The doubt arising here is whether we can allow such a change when consequences are apparently vague for us. Might the change be helpful or damaging, bring happiness or despair, give us a sense of immortality or a sense of dull existence? Are we prepared technologically to create a new species or just mutant variants of an existing type?

Semi-conclusion 3: Change as a prolongation of human life is an open-ended concept. Unless we know where we are going, and whom we want to become, change can lead as much to regress as to progress.

Dangers of Enhancement

Enhancement-change can also be introduced into germ-line cells or early embryos, causing a lasting modification at an early stage of development. This is a more radical intervention than the prevention of diseases of old age, not only because of the lasting effect through generations but, more important, because of the possibility of implementing more serious modifications. Such changes are associated as much with improving some human characteristics as with excluding or preventing other, pathological ones. Both interventions, as we know, can be closely connected.

The main procedure employed here is recombination of a part of the DNA of the male and female gametes at the preconception stage or recombination of a part of the DNA of a human embryo before implantation. By these means, some genes responsible for certain diseases, for example, can be removed and replaced with “positive” ones. Eventually it may be possible to modify the genes responsible for personal characteristics that are not connected with pathological states. We could, for example, design the genetic make-up of a child according to the parents’ preferences, and implement that design. In this way, such basic characteristics as height, hair color, eye color, and IQ might be selected or changed, along with dispositions to sport, artistic creativity, or scholarly work.

This kind of change is usually understood as a difference for the better. An abnormal state is not a starting point. Rather, the normal state is subject to improvement. We surely want to have offspring who are healthy, beautiful, and intelligent and have special, outstanding dispositions to chosen activities. Why not put all possible efforts into improving these characteristics and thus give our children more chances in a changing society or, as someone might put it, “give them an edge in competitive society?” It seems to be reasonable to go into this direction, at least in principle.

Nevertheless, some serious objections arise. The first is the possibility of worsening the human condition instead of bettering it. As John Harris puts it, “Dangers which might attend attempts at enhancement could wipe out any benefits and might indeed change things for the worse rather than for the better.”¹³ Thus, the first task

¹³Harris, *Enhancing Evolution*, 17.

would be to eliminate possible dangers or at least minimize them. Some precautionary measures must be in place in any effort to improve the genotypes of gametes or early embryos. The problem with the imperative to make these improvements is that we cannot progress unless some experiments are carried out, and such experiments are necessarily connected with possible errors and unexpected results.

The second objection concerns the question of a criterion. What is the measure according to which we will intervene? Discussion of this topic is well advanced. One position points to a concept of the greatest chance of a good life for children. This notion, put forward by Julian Savulescu, says that a “couple (or single reproducers) should select the child, or the possible children they could have, who is expected to have the best life, or at least as good a life as the others, based on the relevant, available information.”¹⁴ The argument is a part of the liberal perfectionist agenda, which seeks to make the world a better place.¹⁵

A more moderate view points toward normality. Children should be given an average chance for a good life. In the mouths of Bonnie Steinbock and Ron McClamrock, it should be “a decent chance of a happy life.”¹⁶ This measure, although imprecise, can point to the state of a relatively healthy life with an average level of contentment and happiness. It sets an average threshold for any intervention and is close to a therapeutic approach. The genetic intervention will tend to eliminate disease-related genes in order to provide conventionally accepted health conditions for the child.

On the downside, genetic enhancements can cause undesirable consequences for given persons when they realize their dispositions. The enhancements may constrain life choices and hence diminish freedom. Moreover, some interventions carried out at the beginning of human life can cause unintended outcomes that may make the life of the person objectively difficult or atypical. Given these possibilities, some bioethicists put forward a criterion of “the right to an open future.”¹⁷ Changes introduced to a genotype of an individual should not limit the subject’s manifold life options and choices.

The right to an open future can be endangered just as much by making positive interventions as by neglecting to remove negative tendencies. Concerning positive interventions, a rule of conduct would lay stress on acting with caution so as not to undertake radical genetic interventions. The removal of negative tendencies, having

¹⁴Julian Savulescu, “Procreative Beneficence: Why We Should Select the Best Children,” *Bioethics* 15.5–6 (October 2001): 413–426.

¹⁵Jonathan Glover, *Choosing Children: Genes, Disability, and Design* (Oxford: Oxford University Press, 2006), 56.

¹⁶Bonnie Steinbock and Ron McClamrock, “When Is Birth Unfair to the Child?” *Hastings Center Report* 24.6 (November–December 1994): 17–18, quoted in Glover, *Choosing Children*, 58.

¹⁷Joel Feinberg, *Freedom and Fulfillment: Philosophical Essays* (Princeton: Princeton University Press, 1992), 76–97, cited in Glover, *Choosing Children*, 104.

a more therapeutic character, would tend to eliminate genetic impediments to an individual's healthy flourishing. Although this thinking can be easily understood in medical circles, it draws on strong theoretical and moral considerations. Some bioethicists are convinced that we should undertake such corrections of human genes as a matter of justice. As Allen Buchanan and his co-authors put it, "There is a principled presumption that genetic intervention to prevent or ameliorate serious limitations on opportunities due to disease is a requirement of justice."¹⁸

Such change is a complex enterprise. The therapeutic aspect would not be problematic, provided we have a relatively well-defined concept of health and the notion of the aims of medicine. In other words, we can say that unless medical intervention to a certain genotype goes too far, if it does not threaten to infringe the future of an individual, it will be acceptable. This verdict hinges, of course, on how precisely we define the concepts of health and curing.

The enhancing-change aspect, however, when it is clear and intended—and this is evident in Savulescu's proposal—has a different weight. It can bring about some severe consequences. Jonathan Glover points to one of the dangers, warning that "the moral requirement to aim for a child who will have the best possible life is an open-ended one, which may place too great a burden on potential parents."¹⁹ Designing the genotype of a future individual requires a huge effort, taking into account as many factors as possible. It is easy to imagine that potential parents will tend to want children similar to themselves. The danger is that a variety of forms of the good life will be overlooked in favor of a simplified and even simplistic version of "the best life."²⁰ This prediction and warning is also voiced by Frances Kamm. She claims that we should be careful with enhancing-change because of our lack of imagination as designers. Kamm explains that "most people's conception of the variety of goods is very limited, and if they designed people their improvements would likely conform to limited, predictable types. . . . In seeking enhancement people will focus on too simple and basic a set of goods."²¹

Semi-conclusion 4: Enhancing-changes bring with them many dangers. We are close to setting lower limits for such interventions (i.e., deterministic therapeutic interventions), but we are unprepared to proceed toward more serious ameliorations.

Change and Disability

The variety of forms of human life is another important aspect of the discussion. Parker and Kamm point out that there is a real danger of limiting versions

¹⁸Allen Buchanan et al., *From Chance to Choice: Genetics and Justice* (Cambridge: Cambridge University Press, 2000), 101.

¹⁹Glover, *Choosing Children*, 54, citing Michael Parker, "The Welfare of the Child," *Human Fertility* 8.1 (March 2005).

²⁰Glover, *Choosing Children*, 54, quoting Parker, "Welfare of the Child."

²¹Frances M. Kamm, "Is There a Problem with Enhancement?" *American Journal of Bioethics* 5.3 (May–June 2005): 13.

of good lives; we can draw on too narrow a range of aptitudes in designing future people. Change might neglect some qualities that reflect the richness and variety of human personalities.

Consider disability. Basically, any disability is perceived as a kind of impediment and disadvantage. It may exclude affected persons from certain activities, like sports, or from certain kinds of jobs, and it may change the quality of the affected person's interaction with the "healthy" population. Disabled individuals are often obliged to undergo a different kind of education; in a sense their lives require more effort if they are to do what "normal" individuals do. Disability also puts more burdens of various kinds on society. Society must provide additional facilities for less able people, which usually requires the expenditure of public funds. We can say that, from certain points of view, disability is an evil per se, which it would be better to prevent it in every possible way.

Nevertheless, to be precise we should distinguish two different factors: disability in itself and being disabled. Being disabled seems not to be an evil per se. We are all familiar with disabled-like states; being less able is connected with our daily life. We can even argue that being less able is a part of our life as such, a part of our human earthly condition. As Ann Shearer puts it, "Each and every one of us knows moments of inability, moments when the body and mind that we take for granted let us down, refuse to work for us. Each and every one of us has felt frustration at physical and mental limitation and rejection from a world that others seem to enjoy so easily."²² It can sometimes strike us that the distinction between a challenged and non-challenged individual is not so clear and permanent, but it is rather based on a social convention and goes along a certain continuum. From such experiences, we can learn a lot. They remind us about our natural limits and finiteness. They can also help us gain a peaceable attitude toward others and a more realistic outlook on life as a whole.

We can point to further considerations which prove that being disabled is not an absolute evil and that to prevent disability at any cost is not the only option. These considerations rest, of course, on the realistic premise—probably not shared by the over-optimistic and utopia-oriented proponents of genetic enhancement—that human weaknesses and imperfections are an irremovable part of our earthly humanity, and that it is better to "tame" them than try to eradicate them.

First, there is a subjective consideration. We cannot say for sure, for example, that people with various disabilities are not happy with their existence. We cannot exclude the possibility that some, even severely challenged people, are glad that they live and experience some degree of satisfaction and happiness, as some have expressed clearly. Tom Shakespeare, for example, a well-known British sociologist and bioethicist who has a form of achondroplasia, straightforwardly declares, "I'm happy the way I am. I would never have wanted to be different."²³ This kind

²²Ann Shearer, *Disability: Whose Handicap?* (Oxford: Basil Blackwell, 1981), 1–2.

²³Glover, *Choosing Children*, 17; and Christopher Newell, "Disability: A Voice in Australian Bioethics?" *New Zealand Bioethics Journal* 4.2 (June 2003): 19.

of declaration may reveal that a unique and rich personality—which is a value in itself—has been formed in specific life circumstances marked by the state of being disabled.²⁴

Second, permanent disability can sometimes enable affected individuals to develop talents that they would not have developed otherwise. Consider disabled people who prepare for the para-Olympics, achieving a level of physical fitness that may exceed a level typical for an average individual. Or consider people limited in their movement to a wheelchair who take up poetry, literature, painting, and the like, and advance in these activities to such a mastery that it brings them honor and fame. Inability to walk and move freely is, of course, an evil, but the affected people are sometimes able to distance themselves from it and, challenging themselves, achieve admirable results as far as their personality is concerned. That is why meeting such people is an extraordinary experience. We admire them for their determination and strong will despite evident impediments and woes.

Finally, the presence of disabled people in a society is essential. Not only does it remind us about the irreducible existence of human weakness, which can of course be corrected but never eliminated altogether, but it also plays a vital educational role. Coming to know disabled people, we realize that they are our fellow human beings who need our help, and we are called to deliver that help. Undertaking such an active assistance, we bring out what is really precious in us, namely, compassion, commitment, and generous deeds. Disabled people help us to transform our attitudes from those centered on ourselves to those centered on others. Accepting and assisting individuals with disabilities enables us to become better people.

Semi-conclusion 5: A change that excludes weaker individuals from a population is not always positive. Being physically impaired is not necessarily an ultimate evil for a given individual and may be vital for the proper development of a society as a whole.

Changing Personal Characteristics or Changing the Person?

What does “change” exactly mean, as far as the human person is concerned? What are we really able to change in this state of being a person? Is it possible to alter what is essential to personhood? The answers to these questions hinge to a great extent on our concept of the person. In the realm of contemporary bioethics, two notions contend for recognition. The first is widely accepted in naturalist bioethics and has its roots in the thought of John Locke and David Hume. The second is associated with the Aristotelian and Thomistic philosophical tradition. The Lockean notion represents the dominant thinking today on the person and is almost universally acknowledged by keen proponents of genetic enhancement.

²⁴In the case of an individual who is disabled mentally, we cannot ignore the fact that he or she experiences some contentment, but usually such an individual cannot acquire a unique and rich personality. Hence, it is more difficult to argue that being disabled mentally amounts to a variation in lifestyle.

In his *Essay Concerning Human Understanding*, his famous thesis concerning personal identity, Locke said that the person “is a thinking intelligent being, that has reason and reflection, and can consider itself as itself, the same thinking thing, in different times and places; which it does only by that consciousness which is inseparable from thinking, and as it seems to me essential to it.”²⁵ Thus Locke focused his attention on the issue of what makes a given entity the same person in various times and places but not so much on the nature of the person itself. Although he did not leave us a precise description of what the person is, his formula at least suggests that without thinking, reason, reflection, and consciousness, an entity cannot plausibly be called a person. Apart from the personal identity debate, Locke’s essay triggered a long discussion concerning what the person is. Hume, in addition to Joseph Butler and Thomas Reid, was vividly involved in this debate, and his sensualistic proposal became a cornerstone of the naturalistic approach to the issue.

Reid put forward a proposal to sort out the problem of identity by reaffirming the idea of an underlying subject that exists prior to all personal characteristics and uses them as the means for his or her outer manifestations.²⁶ This move however means that to understand the unity and sameness of a person in different times and places, we must resort to a metaphysical category that is beyond all empirical proof. Having realized that consequence of Reid’s interpretation, Hume expressed his decisive opposition. Basically, he rejected the idea of a trans-empirical substance. That is why he was unwilling to accept that there is anything beyond empirical data. His declaration is clear and straightforward: “As our idea of any body, a peach, for instance, is only that of a particular taste, color, figure, size, consistency, etc., so our idea of any mind is only that of particular perception without the notion of anything we call substance, either simple or compound.”²⁷ The mind must be treated methodologically in the same manner as the body. Whatever we are able to pronounce about the mind—a term Hume used interchangeably with “the person”—comes from a set of empirically detectible perceptions. Research on the body is a paradigm for a research on the mind. Consequently, there is no sense in asking whether the mind and the person are a substance, if that can be answered only by rationalistic analysis.

Hume was so persistent in holding this position that he wanted to make an idea of oneself as a substance into an unintelligible conviction devoid of any realistic basis. He said, “For my part, when I enter most intimately into what I call myself, I always stumble on some particular perception or other, of heat or cold, light or shade, love or hatred, pain or pleasure. I never can catch myself at any time without a perception, and never can observe any thing but the perception.”²⁸ The idea

²⁵ John Locke, *An Essay Concerning Human Understanding*, ed. Kenneth P. Winkler (Indianapolis, IN: Hackett, 1996), 466.

²⁶ Thomas Reid, *Essays on the Intellectual Powers of Man* (Cambridge, MA: MIT Press, 1998), 341.

²⁷ David Hume, “An Abstract of a Treatise on Human Nature,” in *An Enquiry concerning Human Understanding: With a Supplement, An Abstract of a Treatise of Human Nature*, ed. Charles W. Hendel (New York: Liberal Arts Press, 1955), 194.

²⁸ David Hume, *A Treatise of Human Nature* (London: Penguin, 1969), 300.

of oneself is a category that does not fit the logic of perceptions: it does not have a clear-cut object; it is too abstract in comparison to particular perceptions denoting given empirical qualities. Even if there is an idea of myself, it is essentially associated with perceptions themselves.

Hume's naturalistic position makes a clear claim that only perceptions and impressions count when we try to figure out what the person is. These factors constitute the person but not a trans-empirical substance. Thus, if the self of the person exists, it is in close association with its perceptions—at least such is the idea suggested by Hume's words, "I never can catch myself at any time without a perception." Later in his analysis Hume blames imagination for the feeling that we are subjects enduring in time. In fact, the person is a bundle of various kinds of feelings, perceptions, impressions, and ideas adequate to them. Thus, in Humean thinking, if we can ever claim that the person is a substance, it will be a bundle conception that comes into play: first we will have to detect empirically various psychic factors, and only later can we take up a discussion on the constitution of personal being.

Contemporary philosophy drew from Hume several important conclusions. First, if we embark on discussion about the person, we have to start epistemologically from empirical elements. Second, there is no need for interest in trans-empirical entities: they probably do not exist. Third, if the enduring subject does not exist, what really counts ontologically and morally are personal characteristics. This latter position is very clearly articulated by two prominent modern philosophers, Robert Nozick and Helga Kuhse. Nozick declares, "If the basic moral characteristic is shared by everyone, then it does not seem to have anything special to do with you. Your value would consist in being a bearer of this characteristic (for instance, rationality, ability to revere the moral law); you would not be valued for being yourself. . . . There then is the sense that any other bearer of the characteristic can equally well replace you, so that you are not valued or respected for being the particular person you are. . . . You are valued for your self but not for yourself."²⁹ In the field of bioethics Kuhse argues in a similar vein: "If one takes this approach, then one is not saying that human life has sanctity, but rather that rationality, the capacity to be self-aware, moral or purposeful, and so on, have 'sanctity.'"³⁰

For the genetic enhancement debate these theses have a great significance. They demonstrate that what really matters to thinkers like Nozick and Kuhse are personal characteristics and that personal characteristics are the proper subject of enhancement procedures. If we try to figure out how to improve a human being, we should think about personal traits. The bearer of the traits plays a less important role and may not even exist. The bearer of traits might be you, a dog, a computer, or even a creature from Mars. Preciousness and sanctity are possessed by the traits—rationality, consciousness, the capacity to be moral and purposeful, the ability to speak language,

²⁹Robert Nozick, *Philosophical Explanations* (Oxford: Clarendon Press, 1981), 453–454.

³⁰Helga Kuhse, *The Sanctity-of-Life Doctrine in Medicine: A Critique* (Oxford: Clarendon Press, 1987), 212.

and so on—but not by an “elusive vessel,” namely, an inner substantial being. Axiological thinking stems from the descriptive (ontological and anthropological), which is a typical inference for the naturalist stance. By changing the descriptive facet of the characteristics, we can influence the axiological one. Upgrading the abilities of rationality and consciousness, we can strengthen our value and prove our preciousness and sanctity. The way to an earthly “sainthood” thus lies open to us. But is this manner of thinking credible?

Some doubts arise from the very conception of the person formulated by Hume. Can we accept the picture of the person as a bundle of various perceptions and ideas? How is it possible that the “composition” of various sensual factors undertakes such complex activity as, for instance, thinking about abstract objects, self-consciousness, and various sophisticated spiritual and aesthetic experiences? These seminal questions remain difficult for Hume to tackle and are, in the end, unanswered. Roderick Chisholm put the question straightforwardly: “How can [Hume] say that he doesn’t find himself—if he is correct in saying that he finds himself to be stumbling and, more fully, that he finds himself to be stumbling on certain things and not to be stumbling on certain other things?”³¹ We can couple this with a further inquiry asking, Is it really plausible to discover personal characteristics and fail to detect a subject who acts through them? Is not such a proceeding a contradiction, as when Hume declares that he stumbles on some perceptions and concludes that there is nothing beyond these empirical factors? What about the agent who carries out the search and claims that there is nothing beyond the tangible data?

The conclusions are clear. There must be an agent, a subject who carries out such a complex investigation of his or her inner states. Chisholm unambiguously contends, “What Hume found, then, was not merely the particular perceptions, but also the fact that *he* found those perceptions as well as the fact that *he* failed to find certain other things. And these are findings with respect to himself.”³² We cannot forget about the subject who operates from “behind” the research process if we are to keep this process credible. The subject is present in these introspective activities, and the very passage written by Hume would have been incomprehensible if the inner agent had been absent.

We can inquire further, What is the subject? The answer to such a question is indeed complex and exhausting and would demand a lengthy analysis. Let us limit our response to a modest proposal, set out already by Reid, the first commentator on Locke. Emphasizing the need to accept the idea of a metaphysical subject in order to deal properly with the problem of personal identity, the Scottish philosopher, taking some inspiration from Aristotelian thinking,³³ set forth how he understood that subject:

³¹Roderick Chisholm, “On the Observability of the Self,” *Philosophy and Phenomenological Research* 30.1 (September 1969): 10.

³²*Ibid.*, 11–12, emphasis added.

³³Roger G. Gallie, *Thomas Reid: Ethics, Aesthetics and the Anatomy of the Self* (Dordrecht: Kluwer Academic, 1998), 76.

My personal identity, therefore, implies the continued existence of that indivisible thing which I call *myself*. Whatever this self may be, it is something which thinks, and deliberates, and resolves, and acts, and suffers. I am not thought, I am not action, I am not feeling; I am something that thinks, and acts, and suffers. My thoughts, and actions, and feelings, change every moment; they have no continued, but a successive existence; but that *self* or *I*, to which they belong, is permanent, and has the same relation to all the succeeding thoughts, actions and feelings, which I call mine.³⁴

Reid's understanding of personal existence points out that there must be a self, or an I, that precedes all types of thoughts, actions, and feelings. We can say that thoughts and acts of consciousness and self-consciousness, acts of linguistic utterances, acts of rational performances, and such do not occur by themselves. They are not free monads closed in themselves and operating in their own right. Furthermore, they do not constitute by themselves a self, an "I," or a person, either. (If they did, would they have an inner, hidden "metaphysical engine" making these characteristics into a personal being?) Rather they belong to a prior subject who uses them in order to manifest himself. Therefore, all personal characteristics are possessed by the subject and should be considered factors describing his existence. Of course, we can abstract his personal characteristics and take them into account independently. We can analyze them as semi-independent phenomena having their own dynamics, logic, and content. Nevertheless, we cannot treat personal characteristics as full-fledged autonomous agents acting on their own. We actually gain a proper understanding of them only when we associate them with a possessor. Thus, in the end, the only reasonable account of the human being is that of an embodied self who thinks, speaks, acts, and feels; who is rational, conscious, and self-conscious.

Can we then plausibly claim that changing personal characteristics via genetic engineering actually alters the subject? On the account above, we can at most claim that "the channels" conveying the subject can be modified, improved, and enhanced. Making even a strong—and probably unrealistic—assumption that we could simultaneously and permanently upgrade all the personal features we have mentioned, we can at most "clear the way" for the revelation of the subject himself; we can enable his potentialities to unfold and show forth. Here we can consider what the potentiality of the subject is. We human beings are not semi-divine creatures, let alone gods: the human subject "unfettered" by various imperfections still remains a human agent. At any rate, we should acknowledge the reality of our human limitations in order not to fall prey to a kind of utopia of infinity and omnipotence, as we are warned by the contemporary philosopher Chantal Delsol.³⁵ The bright future promised by some overoptimistic proponents of genetic enhancement cannot lead us to immortality, because ontologically we are finite creatures, as everything in this world is finite.

³⁴Reid, *Essays on the Intellectual Powers of Man*, 341, original emphasis.

³⁵Chantal Delsol, *The Unlearned Lessons of the Twentieth Century: An Essay on Late Modernity*, trans. Robin Dick (Wilmington, DE: ISI Books, 2006), 11–34.

Conclusions

Discussion of genetic enhancement encompasses a complex realm of issues. Our analyses have touched on some of these, highlighting several important semi-conclusions, which should be considered premises and postulates for further discussion. We can look at these again and try to arrive at more general conclusions. We can also put forward a stronger philosophical thesis restricting the viable horizon for possible genetic enhancement interventions.

To change is defined as “to make or become different.” This is quite a general definition, which allows for naming various actions and undertakings. And rightly so. Nevertheless, in application a more precise meaning must be elaborated. This cannot be done unless we take into account the factors that are subjects of the change. Only in knowing what is to become different can we get to know what the difference itself could be. In our analysis, the first semi-conclusion made evident that we are unable to distinguish curing-change from enhancing-change unless we point to the precise concepts of human health and determine the proper aims of medicine. The third semi-conclusion discloses a similar requirement: Unless we have a well-defined concept of “human being,” it is difficult to say whether the prolongation of human life would be a positive or a negative change. Thus, we cannot consider this issue outside philosophy and, in particular, philosophical anthropology, with all its richness of various concepts of man, his well-being, and his teleology. For instance, we cannot put aside such a perennial question as, What does human flourishing consist in?³⁶ Similarly, we cannot exclude the concept of human nature from the discussion of genetic enhancement. This is an even more fundamental issue in the debate, because some genetic manipulations may take us outside the species *Homo sapiens*. Implementation of these changes will put us on the verge of not remaining the same species.

The real problem that appears here is that certain concepts of human nature, human health, and the aims of medicine will allow and even encourage certain genetic modifications, whereas other understandings of these vital elements will oppose such interventions. Among the former are the ideas that human nature is an open-ended and artificially devised concept; that human health is a state of complete physical, mental, and social well-being; and that the aim of medicine is to pave the way for the advancement of human happiness. Among the latter are the ideas that human nature is an already given reality, that human health is freedom from disease and other maladies, and that the aim of medicine should keep strictly to the activity of restoring human health and wholeness. Could we really proceed with this “melioristic” project without the proper clarification and prioritization of these concepts? The answer seems to be an overwhelming no.

Enhancement-change must be thought over from the point of view of practice. Our fourth semi-conclusion sets forth a real possibility of various dangers that may

³⁶Erik Parens, “Toward a More Fruitful Debate about Enhancement,” in *Human Enhancement*, ed. Julian Savulescu and Nick Bostrom (Oxford: Oxford University Press, 2009), 196.

accompany the practical implementation of such changes. As interventions that can trigger such threats, we have pointed to the recombination of the DNA of male and female gametes at the preconception stage and the recombination of the DNA in an embryo before implantation. These undertakings bring with them the possibility of worsening rather than bettering human characteristics. Such dangers are more likely with enhancement interventions rather than therapeutic ones because of the lack of clear-cut goals under the melioristic agenda. However, both types of intervention must be considered in depth, and ideally according to the “err on the side of caution” rule.

Our reflection on disabled people reveals that the pursuit of genetic enhancement is not an unavoidable task. Being physically impaired is not an absolute evil that must be defeated at any cost. As the fifth semi-conclusion conveys, a disability can in some cases be integrated positively into the flourishing of the disabled individual and the betterment of society as a whole.

Genetic enhancement can at most change our personality, not our personhood. It can improve our physical or psychic traits, but cannot alter the basic condition of who we are: we cannot make our human nature into something super-human or semi-divine. An uncritical and persistent pursuit of such a super-human state must actually end up producing a kind of monstrosity. There are two reasons for this: First, we do not know what a radical super-human state is. Striving for it, we will be tempted to multiply and intensify categories we already know and are familiar with. But we have, indeed, no idea how to undertake a radical transformation of ourselves. Second, personal characteristics possessed already convey something essential about the subject. Putting aside developmental anomaly, weakness, and disease, personal features paradigmatically seem adequate, symmetric, and commensurate with the inner agent. They establish what is an average condition of being human in this earthly world. If they do not, if we do not accept this premise, it means that there is basically something wrong in the fundamental structure of the human being—that we are, for instance, deities imprisoned in human bodies. This seems highly improbable. At any rate, the burden of proving it falls on the shoulders of those who propose it.