Values and Ethics for the 21st Century

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INTRODUCTION

Over the last 30 years, the evolutionary status and trajectory of the human species has been brought into question by rapid progress within the fields of nanotechnology, biotechnology, information technology and cognitive science. These NBIC sciences suggest ways in which technology could allow people to make themselves "better than well" (Elliot 2003, Kramer 1994) by using human enhancements to transform what we regard to be species-typical functioning for human beings. Such enhancements may include brain modifications to increase memory or reasoning capabilities, alterations to biochemistry to increase resilience to the environment or the creation of new capacities. It may also include living for much longer or alterations to our appearance to make us more attractive or more aesthetically distinct.[1] Such interventions as laser eye surgery that can yield better than perfect, high definition vision, or the use of cognitive enhancers, such as Ritalin, to help students study for exams, each suggest how humanity is entering a transhuman era, where biology is treated as something to be manipulated at will, depending on one's lifestyle interests rather than health needs. Yet, questions remain

[1] For a comprehensive overview see Savulescu et al. (2011).

about how far society is prepared to accept these kinds of applications and what ethical issues they create.

The prospect of human enhancement has attracted considerable attention from scholars, the media and policymakers alike, each of whom have debated the ethical and moral desirability of such circumstances and the practical social and legal implications arising from a culture of human enhancement. Indeed, over the last 10 years alone, various governments have investigated these prospects, interested in understanding the magnitude of these trends for society. One cannot understate the breadth of these implications, as both advocates and critics of human enhancement agree that they will change fundamental parameters of human existence (Fukuyama 2002, Harris 2007). In a world where achievements are brought about more by technological intervention than effort, the entire system of justice that underpins society is brought into question. Alternatively, if a patient can ask a doctor to ensure that their medicine has an enhancing rather than simply reparative outcome, then the role of medicine and health care, along with the relationship between the doctor and patient changes considerably.

Determining the legitimacy and desirability of such changes is crucial to a global economy, as the transformation to health care and welfare that is implied by human enhancement has critical implications for how society is organized. Thus, healthier people will mean the prospect of longer lives, which in turn will mean a growing ageing population. These circumstances will have an impact on various social provisions and the broader economic infrastructure of a society, requiring people and governments to revise their expectations about the duration of the working life, the economics of pension funds, and the provision of health insurance, among other things. It may influence what kinds of lives people lead, such as when they have children, or what kind of career they pursue. Thus, the consequences of human enhancement pervade all aspects of modern life, creating

demands on social systems that may bring about their collapse, if they are not rethought. This is why it is important for governments to understand the rise of human enhancement technologies, in order to address their overarching implications for the future of humanity.

A number of important contributions to this debate have already been made from such diverse fields as philosophy, social science and public policy. As such, it is helpful to summarize some of the key concerns articulated by these contributions, before offering a critique and re-articulation of the key priorities that should concern future ethical, social, legal and policy debates in this area. However, before doing so, the first part of this essay provides some conceptual clarity on different types of human enhancement. This clarity helps to establish some overarching parameters to the ethical debate over which kinds of enhancement technology are appropriate for people to use.

WHAT ARE HUMAN ENHANCEMENTS?

One of the difficulties with the human enhancement debate is the lack of consensus around what counts as an enhancement. It is often argued that the ethically questionable practice of human enhancements may be distinguished conceptually from the more accepted practice of human repair or therapy. However, it is misleading to suggest that medicine has always confined itself to just repair, or that there is agreement on the acceptability of how medicine is typically practiced today. Indeed, contemporary medical practice draws on a definition of health that is informed by the broader socio-cultural conception of *well-being*, which acknowledges that health is not always adequately described by examining just physiological deficiencies. Instead, a lack of good health may be explained by lifestyle conditions, which require social rather than medical solutions. Alternatively, such practices as in-vitro fertilization to

treat infertility, abortion to avoid the possible psychological trauma of bearing a child, or physician-assisted suicide to ease the suffering of people at the end of the lives, are each examples of medicine applying a definition of health that transcends merely biological dysfunction. Yet, there is ongoing controversy about whether these interventions are consistent with the proper role of medicine.

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Equally, it is untrue to presume that the conditions treated by therapeutic medicine can be detached from some lifestyle that a patient has led. Whether it is alcohol consumption, sunbathing, smoking, lack of exercise, or playing high-risk sports, the lives people lead contribute to their eventual need for medical care. To this end, the proper role of medicine is the business of making people well for a particular kind of life they wish to lead, rather than just making people healthy in some abstract sense. A dancer may need physiotherapy to treat an injury arising from their profession, or a student may need cognitive enhancers to address anxiety caused by the prospect of difficult exams. While not each of these examples can be treated equally in terms of whether they justify medical attention, they reveal how it is not possible to consider medical interventions that are divorced from the environment within which a medical risk becomes a health care need.

In this respect, one may identify two different definitions of health, one which relies on *biomedical* markers of medical need, and another which draws attention to the *biocultural* characteristics of ill health. For the former, one may be more inclined to discuss the biological indicators of

good or ill health, while the latter will discuss health as a social concept, whereby medical intervention is explained with recourse to the social and cultural conditions that determine an assessment over whether a subject is leading a healthy life or in need of medical assistance. Good examples of this are various forms of disability which, beyond the medical treatment of the condition, require various societal changes to ensure that the debilitating effects of the condition are not exacerbated by feelings of exclusion or an inability to function within the social world.

In sum, it is erroneous to suggest that medicine simply treats people therapeutically, insofar as this can be contrasted with enhancement. Indeed, medicine undertakes preventive measures with healthy subjects, before any health care need is apparent, as in the case of childhood inoculations. These examples reveal how humanity is generally predisposed to pursue new forms of medical intervention that can prolong survival. However, these instances are not generally the subject of debates on human enhancements. To get closer to this concept, it is useful to consider another example—the fluoridation of tap water, which is commonly practiced in numerous countries which aim to reduce levels of teeth and gum decay. Over the years, the amount of fluoride within the drinking water of many countries has risen, as dietary habits and ingredients, along with dental hygiene standards, may have decreased. However, the more general point is that, from a purely economic perspective, one of the most effective contributions a nation may make to the oral health—and thus general health—of its citizens it is to include fluoride in the water. In each of these examples, we encounter medical interventions that test the boundaries between therapy and enhancement and each reveals that the line is far from clear.

Additionally, one may argue that the natural trajectory of medical practice leads towards a culture of human enhancements, as humans are rationally predisposed towards living long, healthy lives for as long as possible.

Indeed, society's sympathy towards suicide is due to the belief that such desires are contrary to what rational people ought to value. To put it another way, any person who values life will value its continuation and the pursuit of means that are likely to promote this possibility. Such means may be broadly defined as human enhancement technologies. Thus, the pursuit of these goals is consistent with the philosophical premise that a life worth living should be sustained for as long as is feasible.

The examples of fluoride in tap water or childhood inoculations also reveals the delicate balance required to ensure that any particular enhancement optimizes rather than harms humanity. Too much fluoride in the tap water would have a harmful effect on people's health, as indeed could protection against a disease by vaccination which, in some countries, may lead to a vulnerability towards another condition. Indeed, these examples are also characterised by a lack of consensus about their value. For instance, the fluoridation of water is considered by some to be unethical insofar as it prohibits the consumer to exert any degree of choice over the enhancement. In part this is why some countries have even decided to stop adding fluoride to tap water out of concern about its efficacy.

In any case, these examples are still quite far removed from what many people typically regard to be the core content of the human enhancements debate, which is the improvement of biological conditions to such a degree as to bring into question whether the modified people are human at all. This may involve the creation of new human capabilities that are achieved only by the technology, or the increased functionality of already familiar human capabilities. Each of these prospects suggests how technology may transform the species in such a way as to create a new, post-human era and the presumed difference between such persons and today's populations, along with the expected loss of humanity that many have argued that it implies, is the locus for ethical concern. This is not to

say that all forms of human enhancement involve scientific or technological manipulation. After all, some of the most effective means of enhancing humanity have very little to do with direct biological manipulation, such as education, a good diet or exercise.

In response, it is important to acknowledge how the biological characteristics of the human species have always been changing. Beyond the broad evolutionary claim, the last 100 years have brought about dramatic changes in living conditions that have transformed what kind of health people can expect to enjoy. In short, what is considered to be normal health today is radically different from what it was 200 years ago. Today, people in developed countries can expect to survive many previously life-threatening conditions, while life expectancy and even such biological parameters as height have changed considerably. Many of these changes have become constitutive features of modern medicine and have been achieved by scientific discoveries or insights that are again far removed from debates about human enhancement, such as knowledge about sanitation and hygiene. Yet, these examples have certainly enhanced humanity, bringing into question, again, where one focuses the current debate about the ethical concerns arising from human enhancements.

There is also a normative challenge with the term human enhancement in that it may imply an evaluative judgment about something having been improved when, in fact, this claim is contested. Thus, while we may rightly conclude that having healthier teeth is, in one sense, an improvement of our life, the diminished autonomy that it implies by a nationwide fluoridation of drinking water may be regarded as, on balance, an unreasonable cost. To this extent, it is a value judgment, rather than an appeal to facts, as to whether the modification can be rightly regarded as an *enhancement* of humanity or not. Indeed, this concern appeals to the idea that it is not life circumstances in themselves that matter, but the

means by which we come to enjoy them, a theme that will be explored further in the subsequent section.

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In sum, various authors have attempted to derive a model for conceptualizing human enhancements. For example, Conrad and Potter (2004: 184) study human growth hormone and identity three possible uses "normalization, repair and performance edge." Yet, often the debates about futuristic scenarios where humans have become some very different kind of species are conflated with the more immediate ways in which the therapy-enhancement distinction is creating new forms of wellness that, nevertheless, disrupt what we consider to be normal. Miah (2008) proposes such a typology of human enhancements that is divided into three principle categories, with further sub-divisions in the final category. This typology is modified in the following version, which builds on the three main categories, with further elaboration on their differences and, subsequently, clarification on how they assist in the ethical debate about human enhancements.

1. Enhancing Health-Related Resilience (e.g. fluoridation of tap water or inoculations)
2. Enhancing Lifestyle Functional Capacities (e.g. breast enhancements, height enhancement)
3. Enhancements Beyond Species-Typical Functioning
    a. Extending Human Capabilities (e. g. height enhancement)
    b. Engineering New Kinds of Human Function (e. g. changing color, flight)
        i. Within the realm of known biological possibility (e. g. flight capability)
        ii. Outside of known biological possibility (e. g. capacity to live in non-gravitational environments)

Importantly, this typology does not map neatly onto degrees of ethical concern. However, it does endeavour to convey a continuum of enhancements that begins with examples that are closely aligned with how medical practice operates today, towards interventions that may be practiced in the future. Equally, any single example of a technology may fit into any number of the categories depending on how it is used. For example, a prosthetic leg may provide a disabled person with mobility (categories 1 and 2 are engaged) or allow them to run faster than the biological counterpart (category 3).

Among each of these categories and sub-categories there is considerable ambiguity over where a specific intervention might fit. More specifically, any single case of an intervention could fit into any one of these categories, depending on its precise application. Consider an example that fits into either category 1 or 2: *physical exercise*. In this case, while it is commonly thought that exercise is generally good for people, one might still question the appropriateness of a doctor's advocacy of exercise to a patient, as either a health-related resilience enhancer, or an enhancer of lifestyle functionalities. After all, the evidence to support the claim that exercise optimizes health is complex. For instance, there are differences of opinion about how much exercise is optimal. Equally, society's need to reduce the burden of health care may lead to coercive tactics to ensure people exercise and this may be regarded as unethical. Thus, the development of health credits in the United States, which are connected to the amount of physical activity an individual undertakes, may be seen as an unreasonable imposition on an individual's life. However, there would be little sense in discussing whether it is ethical or not for a person to choose to undertake exercise at all, should they believe it to improve their lives. Alternatively, denying treatment on the basis of not having led a lifestyle that deserves medical assistance—as in the case of decisions over rationing and smoking—may infringe the individual's right to health care without prejudice.

In conclusion, this typology reveals the differences between ways in which one may conceptualize enhancements, beyond a simple binary distinction between therapy and enhancement. This may assist debates about the ethics of human enhancement by restricting discussion to only the relevant implications, rather than drawing too heavily on the broader rhetoric of futuristic transhuman scenarios.

THE ETHICAL ISSUES

Ethical debates about human enhancements have taken place within various bodies of literature, including bioethics, animal ethics, environmental ethics, political science and the social scientific study of medicine. Each of these areas approach the significance of human enhancement from quite different perspectives. For example, Dvorsky (2008) argues that the capacity to enhance human biology must also imply an obligation to "uplift" the capacities of other animals as well. Alternatively, bioethicists have argued that the possibility of human enhancement requires us to consider what sorts of people there should be, alluding to the prospective use of germ-line genetic modifications or selection. To this extent, there is no single set of ethical issues that is engaged by all possible forms of enhancement. For example, enhancing an athlete's performance in sport may raise very different ethical concerns compared with enhancing a child's height to ensure it reaches a level that is closer to a population's average height. Alternatively, genetic enhancement is likely to have different implications from using a pharmaceutical product or a prosthetic device to yield a similar effect. Indeed, debates about the ethics of human enhancement are already so nuanced as to be focused on specific kinds of enhancement, such as neurological, biochemical, or physiological modifications.

As such, an overview of the ethics of human enhancement must first take into account the fact that one can, at best, provide only a compendium of

general concerns that may be engaged by specific examples of enhancement. Equally, while some ethical concerns involve clearly identifiable stakeholders, for others the possible interested parties are much more diffuse. For example, if asking whether a doctor is acting ethically when enhancing a patient, one might refer to their professional code of ethics to assist in answering this question. Very few other stakeholders are relevant to this moral dilemma, though it may also involve appealing to the moral conscience of the doctor. In contrast, if asking whether germ-line genetic enhancement is morally sound, then it may be necessary to consider the interests of the patient along with other members of her family, community, society, and perhaps even the entire world's population—along with future generations. This is because such interventions may have an effect on a much wider population, due to the possible transference from one generation to the next that such modifications imply.

Furthermore, it is necessary to clarify the relationship between *moral* and *ethical,* as they are often conflated within debates about human enhancement. Generally speaking, one would discuss ethical issues in the context of a specific practice community, such as the ethical code underpinning medical practice. Alternatively, morality is concerned with broader questions of value for which there may be no formal codes that are broken. For example, one might have a general moral concern about the prospect of a society comprised of genetically enhanced people, though this may be come about without violating any specific ethical code. In cases of moral violations, it is more difficult to determine whether any specific principle has been violated by an action, or whether the moral concerns arising from this outweigh the benefits that may arise from it. To this end, it is more difficult to derive an uncontested answer as to what people ought to do, which is why a common response to difficult ethical dilemmas is to rely on consensus of opinion, via some form of representative democratic decision. Nevertheless, one may find

assistance in deriving ethical principles by studying human societies and the norms that have emerged around behaviour within culture. Through subjecting such discoveries to a process of philosophical scrutiny, one may develop a clearer sense of the ethical principles that should govern decision-making within practical contexts. Moreover, by examining the practice communities where ethical decision-making takes place, it may be clearer which of these principles are most salient. In this respect, effective ethical reasoning requires taking into account both normative ethical principles and practical ethical decision-making.

Debates about the ethics of human enhancement are already so nuanced as to be focused on specific kinds of enhancement, such as neurological, biochemical, or physiological modifications

Given these complications, how ought one distinguish between types of ethical issue related to human enhancement? One approach is to treat human enhancements as any other form of biological modification and subject them to the same ethical scrutiny of the practice that facilitates the enhancement. For example, if the enhancement involves using autologous blood transfusions as a way of increasing stamina for an athlete who is running a marathon, then one may refer either the ethics of sports practices, or the ethics of medical practice to determine whether they are acceptable. Thus, one may refer to the ethical principles of sports or medicine, to ascertain whether the treatment can be undertaken without jeopardizing other values. However, one may also argue that the use of human enhancement is so different from all other forms of biological modification that it requires a completely different ethical framework from which to determine their acceptability. Such an argument is based on the view that traditional medical ethical principles have been framed by the minimal interest to make people well, whereas the goals of enhancement are quite

different. However, this *exceptionalist* approach encounters a practical challenge in that many of the tools of human enhancement are regulated by those who hold the former view, whereby any use of a medical intervention for a non-medical purpose must satisfy the regulatory expectations of standard medical care. In this respect, it is unreasonable to expect a radical overhaul of this highly established system of governance over the use of new or established medical substances, products and methods. Indeed, change in this respect is even more unlikely when one takes into account the likely fragility of enhancements, which may require ongoing medical monitoring and possible correction when used.

An alternative route towards establishing an ethical framework of human enhancements is to examine how the debate has taken place thus far within a range of intellectual spheres—both theory and practice—and to provide some form of synthesis of the arguments and concerns. One of the challenges with this approach is that there is no consensus over which ethical issues are the most salient. Moreover, relying just on what has already been identified as a key ethical concern may overlook an essential issue that has yet to be discovered. Indeed, this approach has led to specific studies focusing on specific ethical concerns, to the omission of others. Nevertheless, a review of the literature reveals clear trends in what are seen by many commentators to be the key concerns and it is useful to build on this previous research. This is most adequately summarized in Allhoff et al. (2009), which frames the ethics of human enhancement under the following categories: Freedom and Autonomy, Fairness and Equity, Societal Disruption, Human Dignity and Good Life, Rights and Obligations, Policy and Law (ibid). Yet, one of the difficulties with this approach is that it does not distinguish between the different levels of decision-making that operate around ethical dilemmas, from the individual to the societal.

In response, the following sections provide an overarching analysis of the various approaches to articulating the ethical issues that are engaged by

human enhancements. It is structured in terms of three primary categories, which provide a useful heuristic through which to identify types of ethical concern. The assumption is not that these three domains can be neatly separated, but that there is value in delimiting ethical issues in terms of what Singer (1981) describes as the "expanding circle" of moral concern. Thus, separating these concerns out into distinct units may assist in clarifying where the ethical dilemma resides and what kind of action—individual, professional or societal—is required. An *individual* ethical issue relates directly to the interest of the subject who is undertaking the enhancement themselves. The *professional concerns* category relates to the individual or institution that is facilitating the enhancement, whereby there may be formal guidelines over ethical conduct. Finally, the *societal concern*s relate to the broad interests of society, which may be frustrated by the adoption of human enhancement.[2] Within each of these categories, individual moral concepts are engaged in slightly different ways. For instance, an individual may consider whether they find it morally just to utilize cosmetic surgery for personal enhancement, while an entire population may consider whether it will improve society to permit such surgery. In each case, the balance of reasoning will differ considerably, while the ethical principle may remain the same.

Individual Concerns

It is uncontroversial to claim that there are good reasons for why human beings seek to enhance themselves throughout their lives. Indeed, as noted earlier, humans have always sought to enhance themselves, where

[2] Society may encompass both the way in which collective interests are organized around specific governmental structures, or the way in which we might refer to the collective interests of multiple life-forms.

some of the more familiar methods include education, exercise or a good diet. Undertaking these pursuits may lead to much greater capabilities than one would otherwise have and may also lead to an advantage over those who choose not to indulge in such practices. To this end, what is it, if anything, that distinguishes these accepted methods of enhancement from those that cause moral concern, such as using drugs or genetic modification? First, it is important to note that it is inadequate to devise moral rules that apply to people in general. Rather, people always operate within different social contexts, where different moral and ethical expectations exist. Thus, a university student may also be a musician, a youth group leader for a religious community, and a part-time sales assistant at a retail outlet. In each of these spheres, the moral expectations may differ, while there may also be a sense of there being an abstract self-identity that operates across each of these domains.

There are not always formal ethical codes that govern our existence. Instead people make decisions based on loose, often poorly defined moral frameworks, which nevertheless may guide their actions and organize social conduct

This is an important realization to take into account when attempting to determine what may be an ethical choice for someone, as any action may violate the ethical expectations of one practice, while not the other. Equally, it would be naïve to suggest that this university student can make general decisions about their well-being without being mindful of how it affects their ability to operate within any one of these practices. For example, using a cognitive enhancer to pass an exam may violate a university code of ethics, but it may be considered an enrichment of his performance within the orchestra, where there is greater ambivalence over the whether such enhancement is ethical. These nuances that define

individual lives are an important reminder that there are not always formal ethical codes that govern our existence. Instead people make decisions based on loose, often poorly defined moral frameworks, which nevertheless may guide their actions and organize social conduct.

Means Matter

One common argument that is used to challenge the value of human enhancement is to claim that the *means* by which people achieve their goals in life matter. As such, if one adopts a technological shortcut to achieve some goal, then this may undermine its value. For instance, if one is a mountaineer and decides to reach the summit of the mountain by using a helicopter rather than one's body, then not only has the value of the achievement been undermined, but we might not even claim that a mountain has been climbed at all. This argument extends to many other forms of enhancement, from using coffee to increase alertness each day, to using cosmetic surgery to improve one's appearance. Yet, in these cases the degree to which these means matter varies considerably. For instance, if drinking coffee allows a scientist to reach a discovery that otherwise she would not have made, then we are unlikely to be concerned about this fact. Rather, our interest will be in the fact that a discovery has been made at all. Our assessment may be different if the scientist took illegal drugs to make the same discovery, but this would still not detract from the value of the findings. Equally, if a person uses botulinum toxin (botox), or any form of cosmetic surgery to improve their appearance, in order to increase their chances of attracting interest from others—whether it is romantic or professional—then this is unlikely to arouse ethical condemnation. Certainly, it may invite moral criticism in its giving primacy to the value of appearance over other qualities, such as personality. However, in this area there exists considerable cultural differentiation, which limits the degree to which one would chastise such actions as being morally problematic. For, if

one is willing to criticise the use of botox, then one may need also criticise other attempts to improve personal appearance, such as wearing expensive clothes, makeup or even smiling.

In each of these cases—the mountaineer and the botox user—there are no ethical rules that are violated, only moral concerns that may be engaged, or an ethos that may be breached by the modification. Mountaineers are not defined by a code of ethics, but there is an ethos in place whereby expectations exist about how members practice the activity. To this end, it is unlikely to be a grounds for some form of prohibitive action from the community. Rather, there would need to be more serious harms arising to others for such action to be warranted.

An Authentic Life

Closely allied to the concern about how one attains achievements is an ethical issue that has been articulated often in relation to psychopharmacological substances, such as Prozac (Elliot 1999). In these cases, it is argued that certain uses may be morally undesirable forms of enhancement, as they transform a person into somebody else and that this disconnection is logically undesirable. Such arguments are discussed in Elliott (1999), The President's Council on Bioethics (2003) and DeGrazia (2003). This may have something to do with the sociological concept of selfhood, which locates meaning within our lives in the various ways in which people cultivate their identities that, in turn, become the locus for moral concern. Indeed, Riss et al. (2009: 495) discover that people are "much more reluctant to enhance traits believed to be more fundamental to self-identity... than traits considered less fundamental to self-identity."

This conclusion reinforces the earlier claim that there is no single ethical principle about any particular enhancement that one may appeal to in

order to determine what may be ethically appropriate for people in general to do. After all, where one person may value their extroverted personality, another may loathe it. Nevertheless, to the extent that a life is lived through a drug or other form of enhancement which corrupts some notion of individual will or intentionality, then one may argue that such a life is less meaningful than a life without such mediation. Yet, this is not to say that it has no meaning at all, or that lacks such a degree of meaning as to be not worth living.

Open Future

A further reason for caution over any particular human enhancement is that it may unreasonably narrow one's prospects in life, violating what Joel Feinberg (2007) discusses as the principle of preserving an "open future." While I discussed earlier the uncertainty over whether or not biological modifications can legitimately be called enhancements, this concern alludes to the fact that an enhancement may have a limited life, or may improve only a fixed number of lifestyle choices one makes. This concern is similar to what some authors have also discussed in relation to the problem of irreversibility. In this case, whether an enhancement can be reversed may be reason for caution against its use, assuming that one may hold different aspirations in the future that are disabled by the enhancement.

The concern over an open future has similar scope to what some philosophers refer to as the principle of *prudence*, whereby the preferred decisions one ought to make in life are those that are more likely to lead to long-term benefits, rather than short-term gains. Thus, if a human enhancement were to promote success early in life, but lead to serious disability later, then one may caution against its use. A typical example of such enhancements may be the use of drugs that elicit a short-term

gain—perhaps stimulating creativity or physical strength—but which may also imply long-term health risks. In these cases, Feinberg argues that modifications which violate the principle of preserving as open a future as possible should be restricted.

Morphological Freedom

Despite these various concerns, some authors have argued on behalf of what Sandberg (2001) describes as "morphological freedom," a concept that should trump other ethical preoccupations. In this case, the argument favours autonomy, arguing further that it should be a human right to enhance one's biology, rather than something that the state should aim to restrict.

In closing, it is important to recognize that individual actions take place within specific social contexts, which can, in turn, dictate how one evaluates the moral content of any human enhancement. This may appear to be a morally relativist position, but it in fact acknowledges the possibility of universal moral rules, while recognizing that not all decisions are taken within the same conditions. This is best explained by providing two examples where the same kind of human enhancement is used. Thus, consider the creation of a new prosthetic leg, which may be used by two different people, one is an elite athlete, the other is not. If one assumes that, in both cases, the prosthetic device can make a person run much faster than any other person—whether or not they are considered disabled—then it is immediately apparent how, for the athlete, this may pose an ethical dilemma which is not evident for the non-athlete. The latter is interested in functionality, day-to-day living and is not in direct competition with any other person who may feel that the new limb creates some form of unfairness. However, the athlete is engaged in a practice whereby the interests of the other participants may be frustrated

by the use of this new technological device, in part because a prior agreement had been made between parties about how they would participate.

If one extends this case to other enhancements, it quickly becomes apparent how the conditions of the debate change. For example, consider the use of a cognitive enhancer, such as modafinil, which is used to treat narcolepsy, but which may be used in a non-therapeutic way to keep people alert for longer in periods of extreme tiredness. In this case, the athlete might, again, be undertaking a morally dubious practice, if they use it to improve their performance in competition. Yet in this case, the non-athlete may *also* be violating some sense of social justice, since it is difficult to claim that they are not, in some broad sense, in competition with other people in society. Whether the non-athlete is going to work a day job in a bank, or is a Grand Chess Master, the wonder drug disturbs the conditions of the competition whereby those who are not using it are likely to be placed at a disadvantage. The banker may benefit from the enhancement in terms of winning promotion within her job or by receiving large annual bonuses, whereas the Chess Master may win global renown through beating all other opponents. Each case is morally relevant and morally problematic.

The context of the ethical debate changes further when considering, say, the enhancement of military personnel, where gaining an advantage over the opposition is less of an ethical matter and more of a strategic necessity. In this case, the ethics of war may permit the use of such enhancement technologies, but there may be good reasons for why the state should not permit its government to require soldiers to undertake such modifications, since this may undermine the soldier's personal autonomy. Yet, one may argue that, by necessity, military personnel operate within a context where there is an acceptance of diminished autonomy—following orders etc.—perhaps justifying such use. Moreover,

the use of drugs that would otherwise be unethical to give to a healthy subject may be life-saving in a military context. For example, a stimulant may allow a soldier in a period of sleep deprivation to continue their mission or avoid capture. In this case, one may debate the legitimacy of their having been placed in this situation, but when faced with the circumstances, the ethical compromise of using a drug versus the fact of being captured seems a reasonable trade-off.

There are many examples of human enhancement where the perceived benefits depend on the context. As such, one of the challenges in knowing whether it is wise to enhance is having certainty over the kinds of lifestyles that people may seek to lead. For instance, the agonizing practice of leg-lengthening that is increasing utilised by Chinese citizens could be valuable if one aspired to be a Chinese politician—which stipulates a minimum height of 5ft 7in for men and 5ft 3in for women (Watts, 2004)—but has limited value if one aspires to be a jockey. While there are undoubtedly very few Chinese politicians who subsequently seek to become jockeys, it is important to recognize that many enhancements will also prohibit the enjoyment of other lifestyle opportunities.

Professional Concerns

Human enhancements that rely on some form of scientific or technological adaptation also engage a range of professionals, whose conduct is governed by strict ethical codes. This may encompass the way in which research and development is underpinned by procedures that are necessary to follow before any particular technology can be used within society. Indeed, this is a crucial dimension of the human enhancement debate, as many of the ways in which people could enhance themselves will involve adapting interventions that are otherwise restricted to just

therapeutic use by established regulatory authorities. Thus, in order for enhancement to be possible, it will be necessary to achieve consensus on the value of applying an otherwise medical intervention to a non-therapeutic or enhancing context. Clearly, this has taken place in some areas of life, particularly cosmetic or reconstructive surgery, which is a thriving commercial industry, though it is less clear that similar decisions would be made any time soon in many other areas, such as the use of pharmaceutical products. Indeed, the challenge here is that one of the cornerstones of medical research is that it does not involve healthy subjects. In the case of enhancement, it may be necessary to develop products that are tested with otherwise healthy subjects in order to ensure they are safe for use. Alternatively, enhanced humans may come into being through the use of therapeutic interventions—that is, for unhealthy subjects—whereby the intervention is able to elevate the level of functionality beyond the biostatistic norm.

One of the challenges with deciding whether a professional is in violation of their code of ethics when facilitating human enhancement is that the merit of the enhancement is ambiguous. For instance, it is reasonably uncontroversial to say that laser eye surgery is both beneficent and non-malfeasance and that the overall result improves the life of the client/patient. However, even laser-eye surgery has benefits for only a limited number of years after which the ageing process will degrade vision in such a way as to negate the positive effect of the surgery. In this case, there seems a reasonable trade-off. However, if the laser eye surgery were to exacerbate the degradation arising from the ageing process, then its merit may further be brought into question. Here again, one must expect that reasonable standards of safety and cost-benefit analyses are undertaken, but it is for the client to decide which level of risk they choose to accept. In short, in the absence of certainty, individual autonomy is elevated as the guiding principle in such decisions.

Societal Concerns

Perhaps the primary ethical issues that govern the use of human enhancements relate to the societal governance of their use. Thus, in order for a number of enhancements to be available, it will require a range of decision-makers to develop policy that supports their utilization and will imply a social system whereby people can have affordable access to them. This is true whether the intervention involves a professional facilitator—as in the case of surgery—or is self-induced—as for an over-the-counter pill. In each case, some form of governance is likely, insofar as the effects of the modification are likely to affect the overall health fortunes of the individual.

Of course, if there are no significant harms arising from the enhancement, then this assumption will disappear and an entirely different structure of regulation will be required, if at all. In any case, accepting that societies are likely to set rules to govern the use of enhancements, these decisions will precede most people's decision about whether or not to use them. This aspect is also the reason why the development of human enhancements concerns a global community, as it is increasingly possible for people to undertake medical tourism and simply visit a country where the enhancement rules are more liberal. In such a situation, the ability to maintain a restrictive domestic policy on enhancement may be more socially divisive than permitting its use.

Fairness and Justice

One of the initial concerns that is raised from a societal perspective about human enhancements is how they would be financed and underpinning this concern are questions about fairness and justice. Thus, in a world where national health care systems struggle to provide for populations

and where private health is often criticised to be detrimental to the common good, the prospect of using national funds to enhance people may seem too much of a stretch of resources and, potentially, contrary to the principle of social solidarity. Certainly, one would not expect the needs of people seeking enhancements to trump those who are seeking some kind of medical treatment for dysfunction or suffering arising from a health problem. However, one may argue further that making people better than well and, indeed, ensuring future generations are more resistant to illness, would, in the long term, ease the social burden of health care. On this basis, one may argue that a society cannot afford *not* to enhance humanity. This being true, human enhancements would be offered to all people on a similar basis to how national health care is offered presently, following principles of distributive justice. In turn, this would alleviate the concern about social divisions between wealthy and poor, which may otherwise be exacerbated in a society where enhancements are entirely funded privately. By implication, this system would go some way to avoiding a situation where people are discriminated against on the basis of poor genetics, since enhancements will be available to all. Importantly, this need not mean that everyone must undergo enhancement.

The Yuck Factor

A further societal concern is that changing humanity by human enhancement would undermine some essential quality of our human identity that we would wish to preserve. This may otherwise be described as the argument from *naturalness* (Barilan 2001, Reiss and Straughan 1996, Takala 2004), though there are subtle variations of this argument. Thus, a concern that human enhancement may be contrary to some natural essence may not imply a revulsion for artifice, but it may reveal an underlying intuition that there is something about human biology that

ought not be changed for fear of altering something that corrupts some fundamental part of human identity. Even if the "yuck factor" is difficult to articulate, some philosophers have argued that such a deep-seated intuition has moral weight when deciding whether or not to undertake biological modifications such as enhancements. Notably, Kass (1997) describes this as "the wisdom of repugnance," though it is a view that many have criticized. Probing further into this concern, one finds a reliance on such concepts as "human dignity" which are invoked to claim that there is a fundamental quality to human sensibility that must both be preserved by elevating certain rights, but which may also be violated by altering biology too much (Fukuyama 2002).

There are other moral concerns that are often folded into this fear over biotechnological change, notably the view that undertaking such changes is akin to "Playing God." In this case, the moral anxiety describes a concern that undertaking such changes oversteps some sense of the delimited authority of humanity over its evolutionary trajectory. In short, the argument states that since humans have no oversight in their own evolutionary trajectory, it would be foolish to attempt actions that would, as Harris (2007) describes it, enhance evolution. Arguments of this kind are often—mistakenly I would argue—discussed in the context of eugenics and the idea that state-wide policies to engineer people would invoke the kinds of moral monstrosities that are associated with Nazi Germany, human experimentation and the general disregard for certain kinds of people over others.

Practical Concerns

There are a number of practical ethical problems associated with human enhancement that desire special mention. For example, if societies are unable to implement effective regulation of human enhancements or

reasonably fair opportunity of access, then this may provide a moral reason for restricting use. One form of argument in this area is the "slippery slope" argument, which states that it would be morally undesirable to provide permission to undertake the desirable action X, if the regulatory structure is unable to prevent claims to also undertake the socially undesirable action Y (Burg 1991; Resnik 1994). Equally, an inability to restrict the scrutiny of the state may be a further reason for moral concern over enhancements. For example, the use of memory enhancements may be desirable for some people, but it may be undesirable to permit the state to require an individual to undertake a memory enhancement in order to pursue some national interest. Wagenaar (2008) discusses this case in the context of judicial hearings where there may be an argument to favour forced memory enhancements in order to ascertain the truth about a crime. Finally, there may also be reasons of safety that lead to restrictions of use, such as the levels of toxicity that may be released into the environment when using human enhancements or the possible, unforeseen risks associated with any particular use.

The Zero Sum Problem

A final concern relates to the overall value of human enhancements, though not from an individualist perspective. Indeed, while it is possible that increasing height or speed could yield benefits for the individual concerned, in a society where all people undertake similar enhancements, then the overall benefit is nullified. Instead, the long-term consequence of this permissive enhancement culture is simply a shift in what is biologically normal. In an economy where having exceptional talents or capabilities is required in order to flourish, the eventual outcome of a society where everyone has access to enhancements is akin to a zero-sum game, where there is little change to the overall, relative fortunes that people enjoy.

Of course, not all enhancements are like this. A world where everyone is more intelligent will have a cumulative benefit for society, unless of course there is a trade-off between characteristics, say where increased capacity for logic is to the detriment of an ability to empathize with people or where altruism decreases. While there is no evidence to support this concern, it is important to be mindful of the complexity of some neurological constructs—such as intelligence—which may imply improving the functionality of a number different forms (emotional intelligence, rational intelligence), before one can reasonably claim that it has been improved.

CONCLUSION: WHAT SHOULD WE DO?

To conclude, there remain a number of practical and moral obstructions to the widespread use of many human enhancements. Many cultures still struggle to regulate the health care system for the purpose of making people well and this should provide caution to those who consider there to be a simple route towards an effective regulation of human enhancements. When establishing ethical guidelines, it is crucial to clarify the perspective from which the question is being asked, in order to understand the breadth of the ethical concern invoked by human enhancements and the scope of answers. If the matter is of personal morality alone, then it will not be necessary or ethically appropriate to involve professionals within such choices. In turn, a matter that concerns society at large should take precedence over individual morality.

At all levels, it is crucial to establish some general principles that govern the ethical conduct of human enhancement. These should involve widespread, independent consultation and investment into research principles. Equally, one may derive some minimal conditions of ethical practice that are informed by other forms of medical intervention, such as

the promotion of autonomy, concern about justice and welfare and so on. Finally, perhaps the most pressing issue is the degree to which the use of human enhancements requires a global response, rather than just domestic policy. While such work has become research leadership in a number of countries around the world, there is still much more to achieve before a clear sense of the global implications of human enhancement has been achieved, as well as a reasonable strategy has been formulated.

Allhoff, F., P. Lin, J. Moor and J. Weckert. 2009. "Ethics of Human Enhancement: 25 Questions and Answers." *Studies in Ethics, Law, and Technology* 4 (1).

Barilan, Y. M., and M. Weintraub. 2001. "The Naturalness of the Artificial and Our Concepts of Health, Disease and Medicine." *Medicine, Health Care and Philosophy* 4 (3): 311–325.

Conrad, P., and D. Potter. 2004. "Human Growth Hormone and the Temptations of Biomedical Enhancement." *Sociology of Health and Illness* 26 (2): 184–215.

Burg, W. van der. 1991. "The Slippery Slope Argument." *Ethics* 102 (1): 42–65.

DeGrazia, D. 2003. "A Reply to Bradley Lewis's 'Prozac and the Post-human Politics of Cyborgs'." *Journal of Medical Humanities* 24 (1/2): 65–71.

Dvorsky, G. 2009. "All Together Now: Developmental and Ethical Considerations for Biologically Uplifting Nonhuman Animals." *Journal of Evolution and Technology* 18(1): 129–142.

Elliott, C. 1999. *A Philosophical Disease: Bioethics, Culture and Identity*. London: Routledge.

Elliott, C. 2003. *Better Than Well: American Medicine Meets the American Dream*. New York and London: W. W. Norton and Company.

Feinberg, J. 2007. "The Child's Right to an Open Future." In *Philosophy of Education: An Anthology*, edited by R. Curren. Malden, MA: Blackwell.

Harris, J. 2007. *Enhancing Evolution: The Ethical Case for Making Better People.* Princeton, NJ: Princeton University Press.

Fukuyama, F. 2002. *Our Posthuman Future: Consequences of the Biotechnology Revolution*. London: Profile Books.

Jeungst, E. T., R. H. Binstock, M. Mehlman, S. G. Post and P. Whitehouse. *Biogerontology, "Anti-Aging Medicine" and the Challenges of Human Enhancement,* Hastings Center Report, July-August, 21–30.

Kass, L. 1997. "The Wisdom of Repugnance." *The New Republic* 216 (22): 17–26.

Kramer, P. 1994. *Listening to Prozac*. London: Fourth Estate.

Miah, A. 2008. "Engineering Greater Resilience or Radical Transhuman Enhancement." *Studies in Ethics, Law and Technology* 2 (1): 1–18.

President's Council on Bioethics and Leon Kass. 2003. *Beyond Therapy: Biotechnology and the Pursuit of Happiness.* Washington, D.C.: President's Council on Bioethics.

Reiss, M. J., and R. Straughan. 1996. *Improving Nature?: The Science and Ethics of Genetic Engineering*. Cambridge: Cambridge University Press.

Resnik, D. 1994. "Debunking the Slippery Slope Argument against Human Germ-line Gene Therapy." *Journal of Medicine and Philosophy*. 19 (1): 23–40.

Riis, J., J. P. Simmons and G. P. Goodwin. 2009. "Preferences for Enhancement Pharmaceuticals?: The Reluctance to Enhance Fundamental Traits." *Journal of Consumer Research* 35 (3): 495–508.

Sandberg, A. 2001. "Morphological Freedom - Why We not just Want it, but *Need* it." http://www.nada.kth.se/~asa/Texts/MorphologicalFre.

Savulescu, J., R. T. Meulen and G. Kahane. 2011. *Enhancing Human Capacities*. Oxford: Wiley-Blackwell.

Singer, P. 1981. *The Expanding Circle: Ethics and Sociobiology*. New York: Farrar, Straus and Giroux.

Takala, T. 2004. "The (Im)Morality of (Un)Naturalness." *Cambridge Quarterly of Health Care Ethics* 13: 15–19.
Wagenaar, W. A. 2008. "Enhancing Memory in the Criminal Trial Process." In *Reshaping the Human Condition: Exploring Human Enhancement*, edited by L. Zonneveld, H. Dijstelbloem, and D. Ringoir. The Hague: Rathenau Institute.
Watts, J. 2004. "China's Cosmetic Surgery Craze." *The Lancet* 363 (March 20): 958.
Zonneveld, L., H. Dijstelbloem, and D. Ringoir. 2008. *Reshaping the Human Condition Exploring Human Enhancement.* The Hague: Rathenau Institute.

>> This article provides an overview and analysis of the ethical issues concerning the use of human-enhancement technologies. It begins by explaining the challenge with defining human enhancements, while also proposing a typology of enhancements that problematizes the distinction between therapy and enhancement. Subsequently, it identifies three levels of ethical concern: *individual, professional* and *social. Individual* ethical concerns encompass debates about whether the means of achieving goals in life matter, considerations about an authentic life, prudence and promoting an open future, and finally morphological freedom. *Professional* ethical concerns involve the codes of ethics that govern medical practice and the ethics of cultural practices. Finally, social concerns encompass fairness and justice, the "yuck factor," practical ethical issues and the zero-sum objection. Throughout, the paper argues that human enhancement implies a fundamental restructuring of the global economy, bringing about a transformation of how people conduct their lives.

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