



NeuroRight to Equal Access to Mental Augmentation: Analysis from Posthumanism, Law and Bioethics

Neuroderecho al acceso equitativo a tecnologías de mejora: análisis desde el posthumanismo, el derecho y la bioética




Autor

Diego Alejandro Borbón Rodríguez

Universidad Externado de Colombia
E-mail: diego.borbon01@est.uexternado.edu.co

 <https://orcid.org/0000-0002-2115-2105>

Luisa Fernanda Borbón Rodríguez

Universidad de los Andes
E-mail: lf.borbon@uniandes.edu.co
 <https://orcid.org/0000-0003-2220-4277>

María Alejandra León Bustamante

E-mail: mariaal.leon@urosario.edu.co
 <https://orcid.org/0000-0003-4162-0516>

 **Abstract**

This paper addresses the different discussions that led to the creation of the NeuroRights Initiative and the proposal for a NeuroRight to equal access to mental augmentation. Then it presents some conceptual clarifications, and subsequently makes a detailed analysis of the proposal in light of posthumanism. In this sense, it studies how this NeuroRight may lead to inequality, loss of social diversity and pressures on sociocultural and religious diversity. It also studies the problems and challenges inherent to the implementation of this type of initiative. We propose that a NeuroRight to enhancement should not be incorporated and that equitable access to technologies should be limited to therapeutic purposes only.

 **Resumen**

Este artículo afronta el debate sobre los Neuro-Derechos Humanos. En este sentido, aborda las diferentes discusiones que conducen a la creación de la NeuroRights Initiative y la propuesta de un neuroderecho al acceso equitativo a la mejora cognitiva. A continuación, se presentan algunas aclaraciones conceptuales para, posteriormente, realizar un análisis detallado de la propuesta a la luz del posthumanismo. En este sentido, se estudia cómo este NeuroRight puede generar desigualdad, pérdida de diversidad y presiones sociales. Por otro lado, se estudian algunos problemas y desafíos en la implementación de este tipo de iniciativas. Proponemos que no se incorpore un neuroderecho a la mejora y que el acceso equitativo a las tecnologías se limite a fines terapéuticos.

 **Key words**

NeuroRights; transhumanism; posthumanism; enhancement.

Neuroderechos; transhumanismo; posthumanismo; mejora.

 **Fechas**

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1. Introduction

Francis Fukuyama (2002) in *Our Posthuman Future*, argued that “the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a posthuman stage of history” (p. 7). The advancement of neurotechnologies has led society to the point where we can glimpse a transhumanist future, and eventually, the posthuman condition.

We talk about the need to deepen the debate before legislating. The social repercussions of its implementation are also discussed in terms of inequality, loss of social diversity, discrimination and pressures on sociocultural and religious diversity

Around this debate on the interaction between humans and technologies, the NeuroRights Initiative of Columbia University was born. NeuroRights arise as the desire to regulate the advancement of neurotechnologies. In particular, in this article we will discuss the neuro-right to equitable access to enhancement neurotechnologies. For this, we explain the advancement of neuro-rights, develop a contextualization on transhumanism and posthumanism followed by conceptual considerations on the wide spectrum covered by cognitive enhancers and the specific type of them that comprise the neuro-right to equitable access.

Then we present our considerations to take into account in the implementation of a NeuroRight to equal access to mental augmentation. We talk about the need to deepen the debate before legislating. The social repercussions of its implementation are also discussed in terms of inequality, loss of social diversity, discrimination and pressures on sociocultural and religious diversity. Finally, we delve into the implementation challenges that must be solved in order to structure this proposal, considering manners such as which neurotechnologies will be given access to, who will assume the potential risks and who will be in charge of guaranteeing access.

2. NeuroRights and NeuroRight to equal access to mental augmentation

Faced with the challenges posed by the advancement of neurotechnologies for bioethics, biopolitics, deontology and law, researchers have devised a new category of human rights: neuro-rights. Ethical concerns about neurotechnological advancement have been discussed for quite some time in neuroethics, but the formal proposal was born in 2017 by professors Marcello Lenca and Roberto Andorno. They suggest that existing human rights may not be sufficient to respond to these emerging challenges and propose four new human rights: the right to cognitive liberty, the right to mental privacy, the right to mental integrity, and the right to psychological continuity (Lenca & Andorno, 2017).

It is interesting to note that in the paper, they mention some technologies that could achieve cognitive enhancement. But it highlights, above all, a permissive position towards the idea of enhancing our cognitive capabilities. The authors argue that “the widespread



availability of neurotechnology applications will provide multiple opportunities for people to access and exercise control over their brain activity, resulting in a number of potentially beneficial activities such as self-monitoring, neurological enhancement, and controlled computer use through the brain” (Ienca & Andorno, 2017, p. 11).

Likewise, they mention “the right of individuals to use emerging neurotechnologies” (Ienca & Andorno, 2017, p. 10) as being one of the two main principles that make up the right to cognitive liberty. This principle indicates that people will be able to alter their mental states using neurotools if they wish to do so, which resonates with the idea of equitable access to neurotechnologies and, as we will speak later, poses serious challenges.

Another delicate and problematic aspect will be the future possibility of intervening in a compulsory and non-consensual way in the brains of criminals. To argue this, the authors propose that the new human rights are not absolute but can be weighed as relative. Thus, it might be argued, on utilitarian grounds, that controlled and temporary violations of the right to mental integrity should be allowed as a form of moral enhancement for persistent violent offenders (Ienca & Andorno, 2017, pp. 19-20).

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The proposal ends by recalling that, together with the exacerbated development of neurotechnologies, we should anticipate the ethical and legal challenges that these presents. In this sense, it is coherent to consider the possibility that current regulatory standards are not sufficient to face the challenges to come. Therefore, it is worth highlighting the innovative proposal to reform current human rights, or even create, as proposed by the authors, neuro-specific rights.

Later, in November 2017, a group of researchers led by Rafael Yuste and Sara Goering published a paper on neuro-rights in the prestigious journal *Nature*. The authors raised their voices on the possible ethical implications of the development of neurotechnologies. While the authors recognize that neurotechnologies offer promising potential in treating neurological diseases and improving general well-being, they also argue “the technology could also exacerbate social inequalities and offer corporations, hackers, governments or anyone else new ways to exploit and manipulate people” (Yuste et al., 2017, p. 160).

In that direction, Yuste, Goering and their team, note the existence of four ethical priorities that must be addressed: privacy and consent, identity, augmentation and bias. That is why the researchers propose that our mental integrity and our ability to choose our actions, among others, must be protected as basic human rights: “we recommend adding clauses protecting such rights (‘neurorights’) to international treaties, such as the 1948 Universal Declaration of Human Rights” (Yuste et al., 2017, p. 162).

The way the mental enhancement discussion is approached is especially interesting in this article. The authors acknowledge that, as the technologies in cognitive and sensory augmentation advance, greater phenomena of discrimination or social pressure against non-augmented humans will be glimpsed. The proposal would not be, then, simply to establish a generalized prohibition of enhancement neurotechnologies, since “outright



bans of certain technologies could simply push them underground” (Yuste et al., 2017, p. 162). In that direction, it was proposed to advance in national and international guidelines on which technologies should be implemented, as well as specific regulations and the promotion of debates on the ethics of neurotechnologies.

From this first seed, Columbia University, the National Science Foundation, and Rafael Yuste conducted a 3-day workshop with a group of leaders from various areas of science and ethics. Upon these meetings, the NeuroRights Initiative was built. Then, in 2019, they formulated five specific neuro-rights: the right to personal identity, the right to free will, the right to mental privacy, the right to equal access to mental augmentation and the right to protection against algorithmic bias (NeuroRights Initiative, 2021). Nowadays, the Initiative is run by the Neurotechnology Center of Columbia University, with Yuste as its Director. Specifically, the right to equal access to mental augmentation is defined as: “There should be established guidelines at both international and national levels regulating the development and applications of mental-enhancement neurotechnologies. These guidelines should be based on the principle of justice and guarantee equality of access to all citizens” (NeuroRights Initiative, 2021).

3. Transhumanism and posthumanism

Posthumanism, then, implies the end of a human-centered vision to go beyond aspects of nature and take it far from biological limits. The posthuman man would have unprecedented physical, intellectual and psychological capacities, because he would have exceeded the limits of human frailty

From a careful analysis of the NeuroRight to equal access to mental augmentation, it is possible to glimpse that the Initiative opens the door to catalyze transhumanism and eventually allow the posthuman condition to be reached. Although the initial idea of Yuste and Goering was to establish the need to regulate access to technologies, and in the same way, to which technologies, we consider that it ended up establishing a right to enhancement. This is problematic, but first it is necessary to understand what posthumanism is and what it stands for.

Posthumanism is a movement and a position deeply debated from philosophy, political science and bioethics. The debates it creates involves essential aspects of the interaction between the biological human being and the new technologies. Posthumanism, then, implies the end of a human-centered vision to go beyond aspects of nature and take it far from biological limits. The posthuman man would have unprecedented physical, intellectual

and psychological capacities, because he would have exceeded the limits of human frailty.

We are witnessing a significantly relevant time due to the exacerbated technological changes that affect the question of what it means to be a human being. In this sense, posthumans, as Garreau (2005) understands it, can be defined as beings “whose basic capacities so radically exceed those of present humans as to no longer be unambiguously human by our current standards” (p. 222). In that sense, transhumans would be those who are in the process of becoming posthuman. Also, as it should be



noted, we are all being transhuman in some way: as education, medicine, food and supplements can be understood also as enhancements.

Humanism, as posthumanists argue, is a completed stage, since the human is no longer situated in the center or as a measure of all things, but in relation to the symbiosis with the technological and biological world. As the improvement of human capacities becomes possible, the anthropocentric notion of man will be lost. In this sense, with the transhuman stage, larger and larger steps would be taken towards the abandonment of biology and the arrival of the posthuman man. Thus, transhumanism is a necessary step to reach the posthuman condition through the modification and improvement of biological capacities.

Indeed, as Robert Pepperell (2003) argues in *The Posthuman Condition*, “the posthuman era begins when we no longer find it necessary, or possible, to distinguish between humans and nature; a time when we truly move from the human to the posthuman condition of existence” (p. 161). When we can identify a future being whose basic capacities radically exceed those of present humans, “the standard word for such beings is *posthuman*” (Bostrom, 2003, p. 5).

Unfortunately, in the debate over posthumanism, not everything is positive. Establishing a new human right to cognitive enhancement can be a radically problematic proposition

Posthumanism, then, offers numerous apparent advantages over the biological human condition, since it allows opening a horizon of enhancement in human capacities, which opens the door to unlimited improvement. On the other hand, as the posthuman condition advances, human suffering would also be reduced and people would be empowered from individual spheres, but

also in interaction with others. Thus, we could move towards a post-human society, exponentially more advanced and catalyzed in progress.

Unfortunately, in the debate over posthumanism, not everything is positive. Establishing a new human right to cognitive enhancement can be a radically problematic proposition. Therefore, we propose a careful and detailed analysis of what this new right would imply, but before getting into the subject, it is necessary to take into account some conceptual considerations.

4. Conceptual considerations

The definition of a cognitive enhancer is complicated since there is not a single type of strategy that can increase our cognitive abilities, as it includes a broader spectrum of tools and even behaviors. Cognitive enhancers in general can be distinguished by their specific mode of action, the cognitive domain they target, the time scale they work on, their availability and side effects, and how they have different effects on their subjects. In this regard, Dresler et al. (2019) suggest to encapsulate the main enhancing strategies into three categories according to their mode of action as: biochemical, physical or behavioral interventions.

Behavioral cognitive enhancers are not usually recognized by the general public, as they include day-to-day activities such as sleeping, meditating or exercising, which have



shown to improve cognitive functioning. They also include fewer known techniques like mnemotechnics that enhance learning and memory or video games designed to improve specific cognitive capacities. On the other hand, biochemical enhancement strategies include psychoactive substances, drugs, and pharmaceuticals; whose effects are widely studied and their regulation highly debated. But in reality, biochemical interventions are not restricted to these controversial substances but also include those that are naturally found in our daily diet, dietary supplements or natural remedies (Dresler et al., 2019).

Recently, the trend is towards consolidating devices that are non-invasive or non-risky enough to be approved for commercial use

But the cognitive enhancer category that concerns us in this article are the physical strategies as they include the wide variety of brain stimulation technologies that interests us. As Dresler et al. (2019) mentions, invasive or noninvasive neurotechnologies range from methods like deep brain stimulation, optogenetic and other techniques such as “transcranial direct current stimulation (tDCS), transcranial alternating current stimulation (tACS), transcranial random noise stimulation (tRNS), transcranial pulsed current stimulation (tPCS), transcutaneous vagus nerve stimulation (tVNS), or median nerve stimulation (MNS)” (p. 1139).

Recently, the trend is towards consolidating devices that are non-invasive or non-risky enough to be approved for commercial use. In this matter, novel approaches like electrical, magnetic, optical, ultrasonic or auditory stimulation methods have demonstrated potential for cognitive enhancement and proven to be of public interest. Other tools are being designed as add-on pieces to assist cognitive functioning such as wearable electronic memory aids, augmented reality gadgets, neural implants and prosthetics. Moreover, brain-computer interfaces propose a futuristic and highly interesting alternative to be able to connect our central nervous system with computers, being able to unlock as Dresler et al. (2019) suggests: “a range of applications that enhance cognitive functions or joint outputs of minds coupled with machines” (p. 1139).

In this sense, what the NeuroRights Initiative would like to achieve would be to regulate or guarantee specific access to this third category of physical enhancers. We believe that this clarification is relevant inasmuch as it was mentioned earlier that this idea of transhumanism encompasses much more than just enhancement neurotechnologies. At the same time, because of their novelty, they have been much less discussed and regulated than other cognitive enhancers such as drugs, alcohol or coffee. Likewise, these physical strategies are not only ethically problematic but could have a much more significant impact and exacerbated consequences in changing people’s cognitive abilities and psychological continuity.

5. Arguments against posthumanism

We envision that the NeuroRight of equal access to mental augmentation opens the door to transhumanism and eventually posthumanism. This, of course, seems profoundly problematic to us. One of the first issues that must be taken into account is, the fact of



opening the door to enhancement, with it to transhumanism, to advance towards the posthuman being, is not a resolved or peaceful discussion; rather it is the opposite. From the forums of bioethics, neuroethics, law and politics, this is a controversial discussion due to the deeply sensitive repercussions of attaching human beings to new neurotechnologies. Furthermore, one might think that in general the legal and political positions that have been accepted in these debates of new technologies have been those of caution and foresight, allowing only the use of therapeutic technologies, and maintaining the prohibition on those that substantially modify human nature, or those that pretend to enhance it.

Exposing different perspectives, Fukuyama argues that posthumanism mixes obvious benefits with subtle harms in one seamless package

These debates about posthumanism are reminiscent of those that once took place around the CRISPR-Cas9 gene editing technology, which modifies a specific genome in a precise and predictable manner. This technology allows to cut and paste genes of the genome with a simplicity never seen before and in a cheap way, making it possible to identify and eliminate some parts of the DNA, and modify it or replace it with another segment (Arora, 2017). It can not only correct our DNA, but also introduce some new characteristics, which will be passed on to our descendants. However, these types of technologies present several ethical challenges such as: “designer babies”, a new form of social neo-eugenics, unknown health problems, exacerbated disturbance of biology, hereditary effects on children, changes in the population, changes in the ecosystem, long-term risks due to ignorance of the scope of genetic editing and others.

In this regard, for example, the European Union, Article 6 of Directive 98/44/EC of the European Parliament and of the Council 1998 prohibits patents on procedures for modifying the germinal genetic identity of the human being. To this is added the provisions of the Universal Declaration on the Genome and Human Rights of UNESCO 1997, whose article 24 refers to the need to be attentive to the identification of practices that may go against human dignity, such as interventions in the germ line. In fact, most of the countries have incorporated regulations on this matter and many of them even include some forms of human genetic editing as a crime. As Carvalko (2020), argues, “until now, the world’s advanced nations have nearly unanimously said ‘no’ to allowing germline modifications of the human genome – that is those that get passed on to our offspring – fearing its incalculable and irreversible consequences for the human race” (p. 4).

Taking into account the risks identified above, it is important to make visible authors who have spoken about the problems implicit in posthumanism and the voices that have raised the alert about what this implies. Francis Fukuyama (2002) in *Our Posthuman Future*, supports a contrary thesis by arguing that “the most significant threat posed by contemporary biotechnology is the possibility that it will alter human nature and thereby move us into a posthuman stage of history” (p. 7). Exposing different perspectives, Fukuyama argues that posthumanism mixes obvious benefits with subtle harms in one seamless package. From human dignity, human rights, to a human nature perspective, Fukuyama aims to raise the alarm to understand that posthumanism is a true ethical challenge that must be carefully faced.



It should be taken into account that medical technology offers a vivid example of the above; tangible benefits can be achieved, such as extending life expectancy, but with less mental capacity and more health problems. Thus, caution should be exercised against overly optimistic initiatives, such as the posthumanist claim to envision the possibility of exacerbating the cognitive and physical capacities of the human. Behind those possible benefits, a mountain of ethical challenges and medical, physical and psychological risks accumulate. Contrary to the obvious risk posed by, for example, nuclear weapons, enhancement and posthumanism appear to be innocuous; however, the short and long-term risks can be just as worrisome.

6. Inequality, loss of diversity and social pressures

The implementation of a right that allows access to enhancement neurotechnologies, derives from the risk of affecting the order of society. The high costs of cutting-edge neurotechnologies would limit their use to the few members of society who could afford them, and that elite with higher purchasing power would gain enhanced qualities, which would further exacerbate the gaps between society. Now, although we believe the intention is good, trying to guarantee everyone's access to improvement neurotechnologies could alter the order of society in dimensions that are still unknown to us.

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At this point, people would be improving themselves to comply with what would be the new standards of society but not by making use of their right to access the improvement because they want to do so. This makes it questionable to what extent citizens are giving their consensus, rather than falling into pressures and new social facts that impair their ability to make a decision. For this reason, this NeuroRight could even violate the person's consensus, the capacity for free decision, but, especially, it contravenes the NeuroRight to free will in the sense that you are not having ultimate control over the decision to improve, but falling into external social pressures (Borbón, Borbón, & Laverde, 2020).

If not everyone chose to improve or give in to these new social standards, one could think of the creation of two factions, one against and the other in favor of cognitive improvement, which would be in constant social friction. This could result for example in a phenomenon of discrimination against improved people as the things they achieve might not be recognized by their unenhanced peers as their merits but be attributed to this enhancement neurotechnology.

This mention resonates with the discussion that is formed regarding enhancers in physical abilities. As using drugs to improve physical resistance is seen like cheating in the sports context, using an enhancement neurotechnology could be seen as cheating



in different situations. This is clear to Bostrom (2007) when he states: "For example, if education is primarily a competition for grades, then enhancement may be viewed as cheating if some people did not have access to it, or if its use contravened the rules" (p. 15). Moreover, this invites us to think about how enhancement could affect self-perception and interrupt psychological continuity, as it would make enhanced individuals ask themselves to what extent their abilities are really theirs. How could we draw a line between what we were before and after the enhancement? And what impact would this change have on people's long term mental health?

On the other hand, we have the scenario where everyone would agree and make use of their right to enhance themselves, which could result in the loss of diversity and has various conceptual issues. People could try to achieve socially appealing characteristics that over time are seen as more striking to succeed in this post-human world. In this sense, as everyone tries to progressively achieve these new standards, the particularities that differentiate us and provide heterogeneity to the population could tend to disappear.

Additionally, we must be careful when understanding the effects of enhancement and the pressures on sociocultural and religious diversity

Moreover, there's a need to define how much each person would be enhanced and how these standards could be ideally established. For example, most cognitive attributes in healthy individuals, such as memory or attention span, follow a normal distribution (Bostrom, 2007). For example, a measure of enhancement could be established as raising this cognitive quality 2 standard deviations above the original mean, but how would such a transition take place? Since we all have different cognitive abilities, would it be desirable to grant a greater degree of improvement to people with low initial abilities or should

everyone be improved to the same degree while maintaining these natural differences? Would we give a little more improvement to the one who is behind in that cognitive quality to reach a certain social standard of normality? On the other hand, if everyone improves to the same extent at the same time, nothing about this inequality will change; there would simply be an increase in average cognitive ability.

Additionally, we must be careful when understanding the effects of enhancement and the pressures on sociocultural and religious diversity. It is important to be cautious in respecting different cultures and ways of understanding the world, since there is always the risk that the cosmology of different cultural groups will be unjustifiably affected. Even incorporating new commercial logics and social guidelines on the union between human beings and technology can lead to a gradual impact against indigenous groups or communities of people who view the transition from humans to "cyborgs" with skeptical eyes, or even those who emphatically reject that possibility.

For example, from a Christian perspective, Lusting (2008) approaches by explaining that in broad terms, one finds a cluster of such basic theological and moral emphases in Christian reflections: our human dignity as creatures made in the image of God; an emphasis on the unitary nature of body and soul in our experience; the sanctity of life itself; the fundamental social reality of community and others. Thus, normalizing the enhancement would go against many of the Christian principles and values.



This type of conflict of interest not only occurs in particular religious or ethnic groups but can vary depending on the culture in which the individual grew up. In this sense, Hampton (2017) found that Eastern cultures are less likely to give relevance to their self-needs and points out “numerous studies have shown that self-enhancing tendencies are either weaker or absent in East Asian societies. Compared to Westerners, East Asians demonstrate lower levels of unrealistic optimism for their own outcomes” (p. 5). This could be explained by the notion of the *self* as an autonomous entity held by the independently oriented societies like America and Western Europe in contrast to the *self* encompassing and overlapping with close others as it is seen in interdependently oriented societies such as East Asia.

7. Implementation challenges

The problems and challenges in the area of implementation stem from the implications of creating a new subjective right. A subjective right is a human power to do or claim something. In the same way, it can be thought that a human right implies a category of universality, that is, that the right belongs to all people, regardless of their age, nationality, education and others, for the simple fact of being human. In other words, proposing a new human right implies creating a new faculty or power of every person. This can be problematic when it is considered that, if a right to cognitive improvement is established, each person acquires a new human ability to demand the possibility of being improved through the introduction of neurotechnology.

This poses a first challenge: as time progresses, the private development of technologies will advance exponentially, then we must carefully define which technologies will be accessible

In this sense, it is worth questioning, in the first place, which neurotechnologies can be accessed to and who will be the public, private or even international authority in defining the catalog of technologies to be provided. Thus, it is important to keep in mind that, as the development of neurotechnologies advances, and with it the industry behind the advance, the accelerated introduction of new technologies to the market will be more evident. This poses a first challenge: as time progresses, the private development of technologies will advance exponentially, then we must carefully define which technologies will be accessible.

Failure to specifically define the right to equal access to mental augmentation, could have the effect that all citizens may claim and demand the incorporation of each and all of the new technologies that come onto the market. In other words, this new right could pose the problem of a new burden for the State, for which it would be forced to finance, with public funds, the introduction of all the neurotechnologies that are developed.

With this clear, it is problematic to establish, not only which technologies will be accessible, but who will define it. As Robert Pepperell (2003) highlights, in these debates on the implications of technologies only a few are invited to take part in the decision-making process; decisions that will profoundly affect the course of human development. So, who is in charge of the future?



If the State is in charge of defining which neurotechnologies can be accessed to, it will consequently also have the obligation to provide its citizens with those technologies. This raises several sub-problems: with what resources will the enhancement technologies be financed? On the other hand, would this not lead to the introduction of a burden on the State that would clearly be seen as impossible to finance? In the same way, it highlights that this could exponentially increase the gaps between developed and developing countries, since those countries can hardly finance the minimum subsistence conditions of their citizens, could they really finance something that could be considered as a whim left to the discretion of its citizens? Will developed countries finance the acquisition of millions of neurotechnologies for citizens of developing countries? Will some international organization do it? Is it really the best way to invest public resources?

Will developed countries finance the acquisition of millions of neurotechnologies for citizens of developing countries? Will some international organization do it? Is it really the best way to invest public resources?

Moreover, attention is drawn to the fact that the only thing that a proposal of this type will allow is the exacerbated benefit of the corporate interests of the companies that develop neurotechnologies, since it would be financing, with public funds, the unlimited and numerous acquisition of technologies whose purposes are not therapeutic, nor for public health.

Precisely, the vast majority of public health systems in the world only finance those interventions and essential drugs for therapeutic purposes. We do not know why, then, the State would have to acquire a new obligation to promote and guarantee access to cognitive enhancement neurotechnologies. As Kass (2002) argues, "once one blurs the distinction between health promotion and enhancement, between 'negative' and 'positive' eugenics, one opens the door to all future eugenic designs" (p. 164). This being the case, the State would have to assume an exaggerated burden to allow the permanent incorporation of all kinds of technologies that come onto the market.

Now, if it is not the State the one who would be in charge of promoting and guaranteeing access to enhancement neurotechnologies, it would be the private sector or international organizations, which is of course unfeasible. The private sector, then, would also assume the burden of facilitating access to enhancement technologies in an equitable way for citizens with limited resources and vulnerable or excluded populations. But this, for its part, also raises serious ethical challenges to establish an ethical line between corporate pressures against non-improved citizens, or even serve, again, to give free rein to favoring corporate interests. In the same way, as already analyzed, this would also be new forms of social pressure from the private sector to achieve the sale of millions of devices to populations and groups that may not want to incorporate them.

It would be interesting to ask, then, what is the limit of enhancement. Once cognitive transhumanism is on the rise, we will again and again be pushing the previous limits in terms of improvement. As Kass (2002) notes:

If, however, we can no longer look to our previously unalterable human nature for a standard or norm of what is good or better, how will anyone know what constitutes



an improvement? It will not do to assert that we can extrapolate from what we like about ourselves. Because memory is good, can we say how much more memory would be better? If sexual desire is good, how much more would be better? Life is good, but how much extension of the lifespan would be good for us? Only simplistic thinkers believe they can easily answer such questions. (p. 132)

Now, if the NeuroRight to Equal Access to Mental Augmentation does not mean or does not imply that the State or the private sector must finance, promote or guarantee access to enhancement neurotechnologies, then what does it mean? If it does not mean a new duty for the State, or a mandate for companies, then that NeuroRight would be a meaningless right.

As a final mention, it is relevant to take into account the risks implicit in neurological interventions, especially those that involve invasive techniques in the brain. Neurosurgery is a deeply risky specialty of medicine. Any intervention in the brain involves serious risks and potential damage to the life and physical or mental health of the patient. As an

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example, tumor neurosurgery literature showed that documented overall complication rates ranged from 9% to 40%, with overall mortality rates of 1.5% to 16% (Wong et al., 2012). Consequently, understanding that the brain is a delicate organ and that any intervention involves a series of risks, who should assume them in case of causing damage, and how?

Contributing to the previous point, it is relevant to mention that non-invasive interventions also carry a series of risks that must be taken into account. Any intervention in the brain of a human being necessarily causes changes in the mind of the person that can manifest from the modification of their personality, to other aspects related to cognitive processes such as intelligence or creativity. Also, these interventions can affect other aspects of

the individual, such as their memories, the interpretation that can be given to them, but also their self-image and the perception they have of themselves.

Taking this into account, we consider that this NeuroRight could even go against other NeuroRights by potentially affecting psychological continuity, personal identity, consent, free will and mental privacy. But also, it would affect other existing rights linked to human dignity, the right to liberty, privacy and physical and psychological integrity. Ultimately, all these considerations welcome us into the complex debates of an uncertain future.

With the above, we assume a skeptical position about the need to create a new category of human rights as a limit to neurotechnologies. The regulation of a phenomenon does not imply the necessary consecration of a new generation of human rights. However, due to the premature progress of the discussions on these matters, we call for caution and for the opening of plural academic, social and political forums. This in order to achieve consensus on how we should regulate neurotechnologies before trying to incorporate them into the Universal Declaration of Human Rights or in the internal constitutions of the countries. In that direction, the NeuroRights Initiative must demonstrate the need and convenience of incorporating this new proposal as a new Human Right.



Until then, we suggest not incorporating a NeuroRight that consecrates cognitive enhancement. Instead, we propose to understand the possibility of allowing equitable access exclusively to technologies for therapeutic purposes and functions.

8. Conclusions

This article presented the debate on NeuroRights. In this sense, it addressed the different discussions that lead to the creation of the NeuroRights Initiative and the proposal for a NeuroRight to equitable access to mental augmentation. Then, some conceptual clarifications were presented for, subsequently, carrying out a detailed analysis of the proposal in the light of posthumanism. In this sense, it was studied how this NeuroRight can create inequality, loss of diversity and social pressures. On the other hand, some problems and challenges in the implementation of this type of initiative were studied.

With this, we conclude that it is necessary to assume a skeptical and critical position in the face of the apparent enthusiasm that the proposal to create new human rights has had. It is necessary to be careful in the way in which we try to propose new regulations to neurotechnologies.

We propose, then, that a NeuroRight to enhancement should not be incorporated until the political, academic and social forums are opened. A proposal of such caliber requires, at least, multiple spaces for deliberation to truly discuss the future we want to build. Our proposal is that the equitable access to technologies should be limited to therapeutic purposes, and not to enhancement.

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