

# Neuroenhancement or Neurocheating? Rethinking Ethics in the Age of Cognitive Upgrades

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## Abstract

In its widest definition, neuroenhancement describes actions done by healthy people to enhance their mental abilities beyond what is naturally possible. In contrast to therapy, which tries to reverse disease or lessen suffering, enhancement seeks to increase a person's potential regardless of disease or suffering. On the other hand, the growing application of neuromodulation technologies presents serious moral questions about social interaction and the pursuit of personal traits. Therefore, this paper aims to convince the scientific community that neuroenhancement has been used since the beginning of human civilization, whether through tools, inventions, or modern technologies. As such, it should be viewed as an extension of the innate human desire to innovate and improve.

**Key Words:** neuroenhancement, ethics, human nature, neuromodulation, neuroethics

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## Introduction

Should technologies be explored to improve human cognition, or is this crossing a line of changing the essence of what it means to be human? In the broadest sense, neuroenhancement refers to measures taken by healthy individuals to improve their mental functions beyond natural limits. Unlike therapy, which reverses illness or alleviates suffering, enhancement aims to improve an individual's capabilities regardless of illness or suffering. This concept operates through targets – sensory perception, motor action, mood, and cognition – with pharmacological, non-pharmacological, and technological interventions. While pharmacological neuroenhancement often involves the non-medical use of prescription drugs, alcohol, illicit

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substances, or soft enhancers such as dietary supplements and caffeine, non-pharmacological methods include everyday activities such as sleep, exercise, meditation, learning new skills, and computational cognitive training (Marazziti et al., 2021).

As with many technological advances, biohacking devices, genetic editing, and non-invasive brain stimulation, including transcranial direct current stimulation (tDCS) and transcranial magnetic stimulation (TMS), have reached the practical approaches in the everyday lives of several people. In contrast to biochemical or physical interventions, behavioral methods are rarely associated with health risks or ethical concerns. Aside from being easily accessible to the vast majority of people, it also often brings greater cognitive benefits. However, the increasing use of neuromodulation technologies raises significant ethical concerns regarding social interaction and the individual good life. Therefore, this paper aims to convince the scientific community that neuroenhancement has been used since the beginning of human civilization, whether through tools, inventions, or modern technologies. Thus, it should be addressed as an extension of humanity's natural drive to innovate and improve.

### **Ethics of Neuroenhancement In Social Interaction**

As one of the most controversial topics in the ethics of neuroscience, neuroenhancement technologies have, from the outset, been not only an ethical and philosophical debate but also a political one. A notable issue is social disruption (Jwa, 2019), as unequal access to these methods can lead to an exacerbation of communication gaps and social inequalities, potentially creating a cognitive division between those who can afford improvements and those who cannot. While these concerns reinforce the ethical complexity of neuroenhancement, they also invite a broader discussion about its role in human progress.

The conflict situation surrounding socio-political enhancement plays a comparatively minor role in the neuroenhancement debate, as the prevailing idea is that biotechnological enhancement is more often seen as a threat to genuine social connections than an opportunity to enrich them. This has been discussed by a great number of authors (Heinrichs, 2022), emphasizing the social communication consequences between enhanced or post-human individuals and those who remain unenhanced, as well as the changes in societal expectations of skills that would consequently put pressure on unenhanced individuals to compete in an unfair environment. Moreover, analogous to doping in sports, neuroenhancement in educational and professional contexts is often criticized as an act of cheating due to the lack of fairness, integrity, and meritocratic principles.

However, these lines of thought face several challenges. First, one might wonder whether quantitative changes in cognitive abilities could

lead to a significant communication gap as well as qualitative changes, such as different embodiments. Comparable to perceptual disorders, i.e., blindness or sightedness, they do not significantly affect communication. In addition, the method introduced by some authors (Savulescu & Sandberg, 2008) has the advantage of targeting the attachment between sexual or non-sexual partners by altering the levels of oxytocin, vasopressin, and corticotropin-releasing hormones. Concerning social inequalities, the way cognitive enhancement is distributed, including accessibility and affordability, determines inequality in society (Greely, 2006). These concerns could be mitigated by the baseline dependency of improvement, as it could have significant positive effects on those at the lower end of the functioning spectrum, while high-functioning individuals would only show slight improvements. Finally, the explicit and implicit pressure to make people literate – for example, through the required basic education and the social disadvantage of illiteracy – is permitted and even encouraged by society. Regarding explicit or implicit coercion to improve and raise standards, it calls for legal and regulatory protection against the use of coercion, such as prohibiting discrimination against the non-use of cognitive enhancement, as well as creating specific and separate parameters for those who enhance and those who do not enhance. Over time, the understanding of coerciveness in relation to direct modulation technology may evolve to resemble the case of literacy as well as other biotechnological advancements. Another ethical concern is fairness due to fraud. Although neuroenhancement provides an unfair advantage over opponents who do not use drugs or technology, it should not be outright prohibited in a competitive context. Many authors have recognized the introduction of mandatory reporting of the use of enhancement in competitively selective contexts as a potential solution to its problem (Garasic & Lavazza, 2016). In addition, it is also possible to create different competitive conditions in which different rules apply, for example the Non-Steroid Football League and the Steroid Enthusiasts Football League (Greely, 2006).

### **Ethics of Neuroenhancement in the Individual Good Life**

In other debates on neuroethics, there is a stronger emphasis on questions of safety, self-determination, and authenticity. The most straightforward consequentialist argument against neuroenhancement lists the long-term effects of biotechnological interventions, and among the most widely discussed effects of neuropharmacological enhancement particularly are the risks of neurological damage and dependence. The second counter insists that the fraudulent happiness is due to the pursuit of heightened or ecstatic mood through psychotropic drugs. As mentioned above, another challenging problem in this domain is that biotechnological enhancement might affect the connection between the individual's biological and behavioral characteristics, thereby impairing

authenticity. Finally, as previously reported in the literature, the concept of human nature turns out to be even more problematic, since it claims that it is already optimal and should be preserved to avoid a posthuman or transhuman era.

Although the evidence of effectiveness and safety of most neuromodulation technologies is primarily collected from patients rather than healthy individuals, and there are null or inconsistent results on their safety risks, this does not necessarily mean that they should be banned. There is an allowance for certain voluntary activities, such as extreme sports or cosmetic surgery, despite the high risks involved. Furthermore, the therapeutic value is considered to outweigh the adverse effects more often than the enhancement effects. Regarding fraudulent happiness, despite decades of research, the concept of the theory of happiness continues to be debated in the scientific community and should be developed before assuming happiness as an outcome of the use of biotechnological enhancement directly and not the result of participating in certain activities by the influence of neuroenhancement (Beck & Stroop, 2015). In addition to these two primary concerns, some scientists claim that cognitive enhancement is morally troubling because it threatens human authenticity and naturalness. However, it is often forgotten that there is no standard measure of function or species mean, as these elements are constantly changing with the use of cognitive enhancement.

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## Conclusion

Overall, neuroenhancement is not a fundamental problem but rather part of the natural process of human evolution. The ethical implications surrounding its use, such as social disruption, long-term effects, and loss of authenticity, are valid but can be controlled through equitable distribution, cultural norms, and regulation. Instead of fearing the side risks, the focus should be on creating framework conditions that enable responsible handling. Neuroenhancement should be viewed as an extension of the natural drive for better performance, and if this were not the case, the entire civilization would be defined as unnatural.

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