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## **THE CONCEPT OF ENHANCEMENT AND ITS ETHICAL ASPECTS**

Enhancement refers to interventions designed to improve functions or traits of the human organism. These interventions aim at ameliorating human capacities and well-being and to increase efficiency and performance of the body as well as mental faculties. The outcome of enhancement are abilities, properties, and traits that are better than the natural setting. The term enhancement is mainly used for interventions without a medical indication. Therefore, enhancement is not a therapy and implies neither cure nor prevention of disease. It doesn't aim at restoring or sustaining health, but could lead to health conditions.

Enhancement can be achieved by various means. Cybernetic enhancement entails the incorporation of technology into the human body like brain implants or human-machine interfaces. Genetic enhancement means the modification of desirable genetic traits in order to improve the organism. Pharmacological enhancement aims at increasing performance through anabolic steroids, human growth hormones, stimulant drugs, or doping in sports e.g. with Erythropoietin (EPO).

By using these methods, somatic features as well as cognitive abilities or can be augmented.

The enhancement of somatic features includes strengthening the immune system through genetic modification or increasing muscle growth through anabolic steroids. Also, facial features like eye color can be genetically determined. The enhancement of cognitive abilities includes increasing the ability to concentrate, memory, and intelligence.

Although many of these improvements through enhancement techniques are discussed, the feasibility is limited. One example is the enhancement of outward appearance in order to create beauty. The genetic modification of certain singular traits like eye color may be relatively easy. Beauty, however is a complex and multifaceted property which is defined not only by genes, but also by socio-cultural factors. The same goes for intelligence. An enhancement of these properties, therefore, seems illusionary.

The ethical implications of enhancement include questions of normality and standardization. What is a wanted trait or property? What should we enhance and according to which criteria? Who decides what is beauty, intelligence, etc.?

Furthermore, there are social implications, which entail questions of access to enhancement technologies and therefore social justice. Will enhancement lead to a separation in two classes, the enhanced and the non-enhanced? What would be the political consequences of such a class division? Finally, there is the issue of eugenics. Will enhancement lead to the formation of a “genobility”, a genetically enhanced elite of humans? Could that imply the distinction between superior and inferior human beings, worthy and unworthy life? At the moment, the legal, political, and social framework is unprepared for dealing with the impact of genetic enhancement. Therefore, an extensive ethical research as well as a broad public debate are needed.

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