

# Enhancement and the Prospect of Techno-Poverty

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## Introduction

We often think of health, rehabilitation, and treatment in relation to achieving what is typically 'normal' for the human body (1). However, treatments that were designed for rehabilitation and restoration purposes are being used with the intention of bringing oneself *above* what is average for humans (2). Additionally, technologies are continually being developed to improve human capability. Human enhancement refers to the use of pharmaceuticals, devices, surgery and genetic manipulation/ synthesis to push the limits of what is humanly possible and to enhance our current body related abilities. There are reports of individuals engaging in certain enhancement practices and the topic of human enhancement has been debated in various settings (3,4, 11).

### Possible Reasons for Human Enhancement

People may want to enhance for a number of reasons—to gain a competitive edge, to live longer, to survive climate change, or simply enjoy new body abilities.

### Contemporary Examples of Enhancement

#### Cognitive Enhancement

The use of pharmaceuticals intended for treatment (i.e., methylphenidate, modafinil) have been used for improving wakefulness and focus in healthy individuals. Use of these drugs has most often been reported among university students (5).

#### Doping in Sports

It is well-known that many elite athletes have used performance enhancing drugs to increase their chances of winning a competition.

#### Military Developments

Exoskeletons have undergone extensive development in the United States military to increase agility and carry increased weight.

## Potential Future Enhancements

### Synthetic Biology

This is creating a genome from scratch base pair by base pair This would mean synthesizing the genetic code of an individual to be developed and born in the Future (6).

### Enhancements and Climate Change Adaptation

In 2012 the journal of *Ethics, Policy, and Environment* published an article titled "Human Engineering and Climate Change" (7). In the article the authors proposed human engineering with the end goal of changing body abilities as a tool to fight climate change. They proposed human engineering as a save alternative to geo-engineering because they believe change in ability expectations of humans (for example consumerism) through education is not really working. However,

### Some Issues with Enhancements

- Health risks and side effects (8)
- Indirect coercion—once enough people enhance, others will have no choice but to use enhancements if they want to stay competitive (9)
- Unequal access, potentially leading to a new form of marginalization (the **techno-poor**) (10)

## Techno-Poverty

If enhancements are developed and significant numbers of individuals begin to use them, we run the risk of creating a new form of marginalization: *techno-poverty* (10). Techno poverty refers to the idea that if individuals or groups are unable or unwilling to use human enhancements, they will be placed at a disadvantage. These 'techno-poor' may be viewed as a lower class than those who have used enhancements and may face discriminatory or oppressive treatment because of it. Because enhancements are not likely to be subsidized, those who are already financially disadvantaged are likely to be further marginalized by their lack of ability or willingness to enhance (10). The possibility of techno-poverty raises the need to engage in discussion regarding human enhancements and critically assess the social impacts that emerging technologies may have.

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