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# POLICY BRIEFING

## Ethics and Human Enhancement

*"How can medicine and technology be used to enhance basic biological capacities, such as cognition and lifespan? Can enhancement be ethical and wise?"*

The Future of Humanity Institute focuses on the complexities of "big picture questions": human enhancement, global risks, rationality, and emerging technologies. Human enhancement refers to the use of medicine or other technology to improve the capacities of people beyond what we currently consider normal.

### Background

Technologies that directly improve human abilities are under rapid development, and challenge traditional concepts of health. Of particular importance, since they amplify human capital, are *cognitive enhancers*. These include drugs that enhance some aspect of mental function, such as mental energy, concentration, or memory. They fall within a spectrum of techniques to improve or amplify the mind, many of which – education, IT, nutrition – are familiar. While cognitive enhancement drugs are more controversial and less explored, they could be beneficial and morally acceptable in many conditions. Many of the concerns raised about enhancement, such as social inequality, medicalization, safety, and competition, can be addressed by a proactive enhancement policy.

The current regulatory framework for funding, developing, and approving drugs and medical interventions is inadequate for the new era of enhancement medicine. For example, all cognition enhancers currently in the market were originally developed to treat specific diseases such as ADHD or narcolepsy, and are now used as off-label enhancers. Realization of the full potential of enhancement medicine requires enabling researchers to pursue enhancement goals directly, and providing a means of testing drugs for their enhancement potential. It also requires implementing an approval and regulatory process for drugs that do not merely attempt to restore a healthy state, but aim at enhancement.

**Recommendations**

We suggest four major considerations that government should take into account in order to derive the greatest benefits and minimize harms from human enhancement technology. Government should:

- Expand the disease-focused regulatory framework for drug approval into a health- or wellbeing-focused framework, in order to facilitate the development and use of safer cognitive enhancement of healthy adults. This would fit with current trends towards patient choice, and reduce medicalization and grey markets

- Provide public funding for academic research into the safety and efficacy of cognitive enhancers, for the development of improved enhancers, and for epidemiological studies of the broader effects of long-term use in terms of outcomes, safety, social, and economic impact of enhancement. This would provide information for future evidence-based regulation

- Increase public funding for research aimed at determining optimal nutrition for pregnant women and newborns to promote brain development

- Explore the possibility of biologically-supported education. This should aim not merely at better ways of putting information into brains, but at finding ways of making brains better at learning and thriving. Not only would this benefit the efficiency of formal education, it would also help life-long learning and economic growth

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