Reflecting Upon the Use of Genetic Manipulation and Drugs for Physical and Cognitive Enhancement Purposes

W1

GRW

Lisa Hamilton

Sophomore

lhamilton3@washcoll.edu

INTRODUCTION

When addressing the topic of physical or cognitive enhancement as a result of drug use, neuroethics is a field that can provide insight into each side of the potential arguments to be made. Neuroscience and ethics are both involved in the determination of a harmonious public attitude towards this subject. There seems to be a strong societal opposition towards the advancement of physical skills with the assistance of drugs. There is a strong tendency to resist the idea of physical skill enhancement especially when that skill could advance the development of a successful career. Enhancing the brain with drugs is an issue that must be viewed from multiple perspectives. It is easy to almost instinctively side against such enhancement; the use of drugs for this purpose can be viewed a means of as cheating as it clearly provides an unfair advantage, just as such used to gain an advantage in athletics is disparaged[1]. However, the application of neuroethics forces us to reevaluate certain aspects of each side.

PHYSICAL ENHANCEMENT

USING GENETIC MANIPULATION TO ENHANCE PHYSICAL SKILLS

Essentially genetic manipulation would force us to work hard to find ways to work less. This does, however, leave us to question whether enhancing physical skills—especially those with performance value—provides an unfair advantage. When you enhance a physical skill there is a greater social impact than when you enhance a mental one[2]. Offering this type of

---

[1] The recent cases regarding Maria Sharapova, the women's tennis champion, as well as the Russian Olympians, exemplify the profound repercussions of athletes' use of enhancing drugs.

[2] Typically, enhanced mental skills have a greater impact on the individuals enhancing them. Enhanced physical skills, however, have a more extreme impact on society. These skills can be applied to sports or art forms. Both applications promote social skills, commitment, and responsibility. They also encourage participation and allow diverse groups of people to come together.

enhancement would come with restricted access to it as well, which further strengthens the argument that it would provide an unfair advantage. Considering musical and athletic competitions, Michael Gazzaniga suggests that such genetic manipulation would break a social contract set in place that for the sake of sportsmanship that assumes all players have gotten to where they are of their own accord. Would "we be rewarding skills developed by determination and hard work or by genetic manipulation and enhancement" (Gazzaniga 55)? The societal implications alone are enough to likely sway most people to impose strict sanctions against these types of enhancements. As marketing, businesses, dreams, ambitions, and lives are shaped around the utilization of incredible physical skills, the possible effects of offering a quick means to reaching the same success, with skills many have dedicated their lives to mastering, feels a lot like cheating. This especially holds true as many argue that, with the right combination of training and dedication, the same skills can be attained. Here, however, we can question how feasible that argument may be.

Gazzaniga says, "we already live in a world where people smarter than we are do less well and people less intelligent do better" (Gazzaniga 57). Genes to an extent are a matter of luck—yet, is it practice or predisposition that allows us to successfully use the skills we acquire? Skills are formed through a combination of developmental and genetic factors. Drive is also an important factor for success. We adapt with practice as our abilities increase over time with the use of repetition our drive to achieve pushes us towards our goals. But is it passion or a genetic predisposition that leads to this drive? Gazzaniga questions whether a star athlete or amazing performer would still have practiced as much if they did without a natural advantage, with respect to their abilities. The answer to this is complicated and difficult to definitely define. Neural pathways are pruned and reorganized as our brains simplify processing to increase

efficiency[3]**.** If this happens earlier, we are more likely to be able to master and excel in the completion of the task/skill we were aiming to accomplish. For example, when looking at the different brain structures between musicians and non-musicians, Gaser and Schlaug hypothesized that some of the differences they observed could be attributed to structural adaptations as a result of rehearsal and long-term acquisition. These early on adaptations can be argued to be factors that helped promote musical success. With a critical period for mastering skills, enhancement in this sense seems reasonable. Despite this, we must ask if we should morally allow enhancing drugs to be used when the same success could potentially be achieved with the right timing and practice. We must recognize how this could become a crutch which we would continually return back to. Rather than putting in the effort required to maximize your natural potential, you would be relying on a quick fix—one which would most likely often be abused. The ethical implications of such enhancement can only be expanded upon from there. As a combination of genes, initiation time, and practice allow for the development of skills, the long-term effects of offering immediate results could be extensive and are largely unknown[4].

The unknown long-term effects of enhancing physical skills, such as potential chemical imbalances, further promote the tendency of disapproval toward this advancement. Reflecting upon this disapproval, we are forced to consider the reality of the situation. Some people are just born with a more unique set of skills tailored for achievement. Using technology to acquire the same skill level may be amazing. However, it is also unnecessary. Not everyone can be a star, or

---

[3] Our brains are reorganized according to the neural pathways most frequently used. Practice is crucial, especially at a younger age, as it becomes more difficult and less likely for an individual to master tasks without the development of specific brain mechanisms.

[4] While it can be argued that some athletes/competitors have unfair biological advantages, the effect of using drugs to "level the playing field" are still unknown and could be catastrophic to those who elected to take them later on in their lives. Drastic changes in one's capabilities over a short period of time could significantly wear down their body or cause an imbalance.

made into one, which is a good thing. If we were to live in a society where everyone reaches the same potential, it would quickly become monotonous. Our appreciation for these accomplishments would also drastically decrease. The abuse of drugs is comparable to genetic manipulation here as they can both be used to get ahead and are both intrinsically viewed as cheating. With unknown long-term effects and serious societal repercussions, enhancing physical skills through genetic manipulation requires time and nurtures risks that may outweigh the benefits. The inevitable abuse that would accompany this technology could also be argued as being more trouble than it is worth.

NEURO-ENHANCEMENT

ISSUES WITH THE ENHANCEMENT OF THE BRAIN THROUGH DRUGS

Training time, genetics, society, and ethics are all influencing factors with respect to the enhancement of the brain. Yet, waiting around for a better brain through evolution might not be necessary. We spend our lives dedicating our time, energy, and resources trying to achieve goals in order to succeed. We train ourselves to study longer, practice more, and structure our lives around such advancement. Some, however, are genetically predisposed to have an easier time reaching these goals. With drugs, the enhancement of intelligence and memory "takes training out of the equation," as improvement is offered with a simple pill (Gazzaniga 71). This presents a more practical method of learning, as it is easier to only need to read material once or to practice problems spending less time focused on repetition. Gazzaniga points out our expectance to forget things as we plan our lives accordingly—writing memos, setting alarms, constructing to-do lists. We would have to change our lifestyles to accommodate lost memories. We adapt as we schedule ourselves to prevent these lapses in memory. We use "adrenaline, glucose, and caffeine [to]

increase memory and performance" (Gazzaniga 76). This can be compared to the use of drugs in this situation as we strive for enhancement. There is, however, always a downside to the potential use of drugs. The public concern over these downsides far exceeds the possible dangers presented in this aim to realistically enhance intelligence. Blinding morals and beliefs often promote these concerns.

Throughout our lives, we are told to work hard to get what we want and, as a result, we don't want to see others do better when they haven't put in as much effort. This is due to the belief that life is fair, even though it is not. Some people will work less and get more and others will work harder only to get less. This is often where ideas of cheating come into play; the intent of the action should carry a greater weight in the determination of which uses are instances of cheating. Despite the value of intelligence, it isn't essential to unlocking potential from every individual—for some, their physical skills are the most beneficial to society. For others, however, we must ask ourselves if we should take advantage of our knowledge and try to increase our brains' capacities using drugs as a means of advancing society. We must consider whether the choice to use these drugs should be an individual choice or one regulated by society[5]. Many argue that the choice should lie with the individual as the exploitation of these drugs and the individuals' choices to abuse them cannot and could not be stopped.

Understanding that we know so little about the brain, the risk of enhancement with the help of drugs would be taken by the individual. We must recognize that certain aspects of intelligence and success will never be testable[6]. Despite the risks, this enhancement could help

---

[5] In both instances there would be an impact on society as what could be accepted in a classroom or in the workplace would change—that change could be seen as society addressing individuals who make a personal decision to use enhancing drugs or by accommodating new regulations concerning drugs used for enhancement.

[6] Different measurements of intelligence are limited in terms of accuracy; they can be biased as

offer a means for improvement within society. As a great percentage of the brain is heritable we know that not everyone can reach the same potential (Gazzaniga 81). Enhancing our brains to allow us to process information faster could help us move in a direction where we are more prepared for the next generations. This could allow us to reach a level of understanding and a destination from which we can offer the best solutions to current and future problems. You can't get anywhere without taking risks. Yet, the pressure to succeed, the fear of failure, and peer pressure are all influential factors which force us to reconsider just how much risk we are willing to take for the enhancement of our brains.

FURTHER DISCUSSION

This issue must be addressed by society, as there are many questions to be answered. Is this a personal choice if it has the potential to affect so many people? What rights do we have to make these decisions? How will it shape our future? What should we do considering the fact that people already use enhancing drugs to perform better? Can we prevent this? Do we want to? Should we? Will we? Opening this type of enhancement up for exploration and questioning can help address the problems causing people to turn to drugs. The problem isn't the fact that people are using these drugs; we already use drugs like caffeine regularly—this is inevitable and cannot be stopped—the problem is that people perceive the need/pressure to do so. We should cautiously look towards advancement, careful to remember the ethical and societal effects of each complicated and personal decision to be made.

---

it is difficult to construct such tests in ways which are applicable to the entirety of the population.

CONCLUSION

Opposition towards the advancement of these physical skills by athletes who have no physical impairment is clear, and with insight into both sides of the argument it is easy to side with those not in favor of using genetics to promote enhancement. Unknown long-term effects and societal repercussions force us to weigh the benefits and the costs of this advancement. With the information known, we are also forced to acknowledge the reasoning behind those promoting cognitive enhancement through drug use. The use of drugs for cognitive or physical advancement is motivated by fear and pressure. Although one may be against the use of drugs for enhancement, it is important to reflect upon on all possibilities. This motivation must be emphasized as we should consider ways to alleviate some of these fears before we promote enhancing drugs, with unknown long-term effects, that people are feeling pressure to use.

Works Cited

How Russia Is Trying to Charm Its Way Out of an Olympic Doping Ban. (n.d.). Available at: http://time.com/4351721/russia-charm-olympic-doping-ban/

Crooks, E. (2016, March 8). Maria Sharapova drug ban: Seven other high-profile doping cases in tennis.
Available at: http://www.independent.co.uk/sport/tennis/maria-sharapova-drug-ban-seven-other-high-profile-doping-cases-in-tennis-a6918576.html#gallery

Hallam, S. (2010). The power of music: Its impact on the intellectual, social and personal development of children and young people. International Journal of Music Education, 28(3), 269-289.

Guetzkow, J. (2002). Taking the Measure of Culture Conference. How the Arts Impact Communities: An introduction to the literature on arts impact studies.

Gazzaniga, Michael S. The Ethical Brain. New York: Dana, 2005. Print. Gaser and Schlaug, Brain Structures Differ between Musicians and Non-Musicians. (2003). Journal of Neuroscience, 23(27), 9240-9245.

Savulescu, J. (2004). Why we should allow performance enhancing drugs in sport. British Journal of Sports Medicine, 38(6), 666-670.