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# HUMAN EVOLUTION IN THE HANDS OF TRANSHUMANISTS

**Abstract**

Many transhumanists believe that enhancement can bring us a better life and erase some diseases and incompatibilities in the future, but it may bring us problems that we can be unable to cope with. Humanity may misuse the means of enhancement. What future could it bring us? Is it possible to have a future from science fiction movies and novels? How can we provide a future that has justifiable accessibility to these enhancements? Will we evolve into something different? These are the questions we usually ask when it comes to enhancement. Our intention is to look into these questions from a bioethical point of view, taking into account both the transhumanistic ideas and their critiques.

**Keywords:** Transhumanism, Enhancing, Uploading, Cybernetics, Research Ethics.

**Introduction to the transhumanist vision of the world**

*At the beginning of the 21st century, a living world on the planet consisted of microorganisms, plants, animals, and humans. After some time, genetic engineering discovery divided humanity into two groups, modified and unmodified. After that, both the modified and the unmodified started cloning, so we got clones from these two groups, which differed. Some were cloned from modified and some from unmodified genetic material. These four groups of people could extend their lifespan in different ways; even after the body's death, some could transfer their mind to a mechanical body, synthetical, or another organic body. These people lived in a developed technological age. They were able to produce Androids- software built into a cultivated organic, i.e., the human body: cyborgs – a software in a mechanical body that can be human as well as artificial. From the outside, Cyborgs looked entirely like a human. Their artificial intelligence was at a high level of development. These people also produced robots that were not anthropomorphic but possessed intelligent software. Except for these four groups of people, all other beings were either not human or a fusion of the human and the inhuman. All these beings from our story live in the future on the planet Earth.*[1]

This thought experiment represents a future in which man can technologically achieve the copying of consciousness into a mechanical body, implement the software into a cultured human body, and cultivate an organic body without consciousness. That would mean that these beings live in an age in which science has advanced much further than it does today. In this paper, we have presented one version of the development of transhumanist ideas. We will assume that

1 This thought experiment is created by the Autor of this Article with the intention to describe one possible future scenario, one possible future society that may appear in transhumanist visions of that where the development of science and technology may lead us. This thought experiment presented here is an updated version of the same taught experiment presented for the first time in my masterwork, *Bioethical Problems from the Standpoint of Science Fiction*. It can be found in the chapter Moral enhancement and transhumanist course of evolution. This article contains the development of the ideas presented in the mentioned chapter. The particular concept of the transhumanistic course of evolution and its possible consequences are observed here from the bioethical point of view. Unlike the approach in the mentioned chapter, here, we are not presenting bioethical problems through Science fiction. We are trying to discuss an issue that might look a bit like science fiction. The problem of evolution through enhancement, either genetic or cybernetic. That specific problem opens these questions: "What ethical problems and dilemmas could transhumanistic ideas and visions bring us? " and "How will we cope with them?" and we will try to deal with them through this article.
Serbian version of *Bioethical Problems from the Standpoint of Science Fiction* is available online at the following link. http://remaster.ff.uns.ac.rs/materijal/punirad/Master_rad_20190923_fil_210007_2018.pdf

some of these beings are super intelligent, but some are ordinarily intelligent and have lower intelligence than average humans. Some of them emerge as a result of human enhancement: 1) Human beings in an organic body that has been grown just for them to transfer their conscience into after the previous body ceases to function. 2) A high-performance android software in an organic body.

As we see in this projection of the transhumanistic future, we have four categories of humans and various groups of intelligent beings that are the combination of humans and technology. So it is natural to ask what would their possible relationship look like.[2] It could be harmonious, but also not.

Suppose these beings' mutual relationship would be harmonious, at least as much as the relationship between humans from the beginning of development, before any improvement. That world would be the realization of the ideas of transhumanists.

If the relationship were not harmonious, which is also very probable, then the realization of such a world would be the realization of humanity's nightmare and the ruin of everything that humanity has created, the destruction of men itself. Then, a world without people is conceivable.[3] That is why when we talk about transhumanism, we always discuss visions of the future and the material for those discussions we find in the actual or wanted progress of science. Transhumanists believe that science will change the course of human evolution. They think that men have achieved their biological maximum, and then they need to enhance to transcend their limitations as biological beings and become trans-human and posthuman.[4] (Jones, 2016, Kurzweil, 2005)

Transhumanism as a movement has great confidence in the progress of science.[5] Transhumanists believe that science will bring us opportunities to develop all our potential. They view the impact of scientific progress "from a brighter side" as something that will benefit men and enable them to develop themselves. Belief in the merging of science and human nature in the future is, we can say, the basic idea that guides transhumanists. They believe that science

2 Similar question raised Terec Vlad on how we will relate to children we enhanced through genetic engendering. See: Terec Vlad (2015) *The Concept of "Autonomy" And Its Relationship with the Idea of Transhumanism*, 121.

3 If the relationship between those beings from our story is not harmonious and if they, in one future scenario, start some kind of war, that could be the last war to happen on this planet. With technology developed so far, we could assume that they might use atomic weapons in the war and lead the civilization to its doom.

4 http://www.softmachines.org/wordpress/wp-content/uploads/2016/04/Against_Transhumanism_1.0_small.pdf

5 See more in Jones (2016: 10).

will influence the development of medicine so we may be able to eliminate all the human shortcomings and give us the possibility of a very long and healthy life. Even in the opinion of some, we could gain immortality.

In his book *Against transhumanism*, Jones (2016: 10) sees transhumanism as "an ideology, a movement, or a belief system, which predicts and looks forward to a future in which increasing technology integration with human beings leads to a qualitative and positive change in human nature. It sees a trajectory from a current situation in which certain human disabilities and defects can be corrected, through an increasing tendency to use these technologies to enhance the capabilities of humans, to a world in which humans and machines are integrated into a cyborg existence."[6] (Jones, 2016: 8)

On the brighter side, the description of transhumanism looks like this: Nick Bostrom, an important figure in the transhumanist movement and philosophy, describes transhumanism as "concern for our whole society", as a movement with a goal that is to improve human society's functioning as an epistemic community.[7] (Bostrom, 2001; accessed 3 May 2021) He is aware of possible risks, but he assumes that benefits are also enormous. In his article *Ethical Issues of Human Enhancement*, he says:

> "Transhumanists hold that we should seek to develop and make available human enhancement options in the same way and for the same reasons that we try to develop and make available options for therapeutic medical treatments: in order to protect and expand life, health, cognition, emotional well-being, and other states or attributes that individuals may desire in order to improve their lives." (Bostrom, Roache, 2007: 3)

Although optimistic, all these visions make us wonder: Will they bring good to humanity or whether their application, especially in medicine, can grow into its opposite. This possibility of turning welfare into its opposite requires transhumanism's visions to be ethically and bioethically thought through and reconsidered. This brings us to our first dilemma that will be further discussed, and later, the enhancement and welfare.

Since these transhumanistic ideas are still only future visions, many of them are not even in the research stage. Bioethics should look at them preventively and point out potential abuses or the harmful consequences of these ideas.

6 http://www.softmachines.org/wordpress/wp-content/uploads/2016/04/Against_Transhumanism_1.0_small.pdf

7 https://www.nickbostrom.com/old/transhumanism.html

Methodologically, we have three phases of research in this paper. The first is to notice the possible ways of improving men offered to us by transhumanists. In the second phase, it is necessary to consider them carefully and find and classify the ethical dilemmas arising from such a possibility. In the third phase, we need to point out the need to find ethical and bioethical tools for dealing with these dilemmas. The tolls are required now in the Research Ethics, but we will need them in general if the possible application of transhumanistic ideas occurs in practice in the future. We need to discuss the responsibility of the scientists, whose research is related to these ideas, and to present one responsibility of the bioethicist regarding these issues.

**Transhumanist course of evolution and the ways of improvement**

"Transhuman course of evolution" is directly related to the notion of enhancement, namely, through the improvement and expansion of human abilities through science and technology. It is the way of evolving through genetic engineering or merging with machines, and it represents, thus, one of the main ideas of transhumanism.

The improvement of humans themselves and their living conditions is something that people have been striving for since the very beginnings of civilization. Since prehistoric times, man has tried to find better ways to provide themselves with food and better shelter. Then to find ways to treat certain diseases adequately. The best witness to the improvement in history is that man has created better and better food production tools, house building, and medical treatment. Some diseases from which people died initially have become easily curable over time.

However, with the development of science and technology, the way people can improve is changing. The modern age offers us more sophisticated ways to improve ourselves and our living conditions. Therefore, it is justified to believe that improvement methods will progress even more in the future. What worries us in this progress is that today's achievements in building houses, food production, and treatment largely depend on very recent scientific and technological advancements. This dependence will become more remarkable in the future. Therefore, it is not unbelievable to expect that the only *improvement* for humans in the future will be possible through contemporary science and new developments of technology. If such a time comes, there is a possibility that we will forever change the way we live.

Savulescu, the Australian bioethicist and transhumanist, indicates that our society already cannot monitor its technological progress adequately morally. Moreover, our civilization has already cognitively progressed and improved so much that it cannot purely embrace its progress even now. So, if we can enhance our morals, there should be an imperative for that:

> "In this chapter, I will take a more provocative stance. I want to explain that far from being an improvement is self-permissible, but we have a moral obligation or a moral reason to improve ourselves and our children. In fact, we have the same kind of obligation that we have to treat and prevent the disease. Not only can we improve, but we also need to do it." (Savulescu, 2012: 224)

Savulescu considers that specific ways of improvement are widespread; namely, people have always strived to improve, from various aesthetic procedures to drugs to improve mood. (Savulescu, 2012: 224-225) He considers these everyday types of attempts to improve humans, while he believes that the more radical biological forms of improving life are stem cells and genetic engineering (Ibid.:225-226), and we should strive for them.

Savulescu (2012: 224-225) believes that we need to keep up with our technological development to make good decisions about using our inventions. Because if we are low morally enhanced, we could misuse our technologies, which could become a problem. According to this author, for the use of our knowledge to be possible without abuse, three conditions must be met: For the intervention to be safe; That is not harmful to others; It does not cause a competitive advantage; And to ensure distributive justice, i.e., that the intervention is distributed according to the principles of justice. (Savulescu 2021: 228-230) Here he is calling for basic principles of bioethics' primary justice.

Enhancement requires distributive justice. That brings us to our second dilemma: What will happen if we do not achieve distributive justice and the enhancement means are already in use.

If we talk about applying tools for improvement, we can imagine a society in which they would be accessible only to a rich part of the population. Naturally, this can lead to discrimination against those who refuse improvement or are not rich enough to improve themselves. For that reason, Savulescu and Bostrom insist on distributive justice as a concept that can prevent this from happening and the imperative that everyone should improve.

Savulescu (2012:240) points out that enhancement is not about creating a *perfect child*, which is even impossible. However, we can give better preconditions

for life to the child we are improving. These interventions are not *against human nature* because human nature strives to be better: "To be a human being means to be better." (Savulescu, 2012: 240) This sentence best expresses Savulescu's view that we should comfort ourselves by making self-permissible enhancements.

In his work *Moral enhancement and freedom*, John Harris (2012: 315) says that Savulescu developed ways of enhancement together with Ingmar Person because they are unfoundedly frightened of cognitive enhancement. However, unlike biological enhancement, the authors do not believe that cognitive enhancement should be supported because such improvement would lead to the rapid growth of knowledge, and people will not cope with it. According to these authors, cognitive enhancement makes sense only when accompanied by adequate moral enhancement.

If cognitive improvement were massive, it would imply the growth of knowledge, which would not be good for humanity because we cannot assume that all people will act morally. Savulescu and Ingmar are afraid of unethical use of the ways of cognitive enhancement:

> "The question we are asking now is whether such an acceleration of scientific knowledge growth is desirable in the present moment or in the near future. In order to eliminate this risk, cognitive enhancement must be accompanied by moral enhancement that extends to all of us because such moral enhancement could reduce malice." (Savulescu, Person, 2012: 291-292).

So, according to this, we need moral enhancement because cognitive enhancement is progressing rapidly with the help of traditional means. Still, we need more radical measures because conventional education does not have the same effect on moral enhancement. Biomedical means, primarily genetic, are, according to Savulescu and Person (2012: 296-297), the most efficient ones. This means' moral character could be improved by developing a predisposition to altruism and justice in people.

They even offer an idea of software that could intervene in a human choice, creating an altruistic population. We could agree with Harris. They are afraid that immorality could lead to the misuse of atomic weapons. For that reason, they insist on moral improvement by creating an unattainable vision (Harris, 2012: 316). We cannot stop scientific progress, and we cannot prevent the cognitive progress of civilization. Moreover, we do not know if we could provide distributive justice for biological enhancement. Savulescu (2012: 228) compares

biological enhancement with the improvement of the environment and curing disease, but enhancement is more than that. For this author, enhancement is just the next step in natural Evolution. Enhancement is not against natural Evolution but is one way to master human nature and perfect it to master our scientific and technological progress. Could we really master our Evolution, is our next dilemma. This dilemma is covered by Ivana Gregurić, the representative of integrative bioethics.[8]

Human improvement is mostly related to genetics, but it can also be related to cybernetics. For this reason, we see two possible courses of Evolution on the one hand, genetically and on the other cybernetically. The cybernetic course is related to creating hybrids of humans and machines. (Vertovšek, Greguric, 2018: 100-101) Creating a splice between humans and machine is a more radical course of Evolution. The possibility of merging humans and machines is less likely in the near future than genetic modifications.

Moreover, it is no less ethically relevant issue. Because here we are at the level of adding humans something that they cannot get through natural development. Here lies our fourth dilemma. So, how far could we go on with the merging? Will the notion of a human change? What will happen to those who refuse this way of enhancement? All of these questions became relevant for bioethics. Will we need some principles? Greguric and Vertovšek think yes. (Vertovšek, Greguric, 2018: 101)

> "Cyborgs, as human-machine systems with human and/or artificial intelligence and self-regulation, are hybrids of man and machine (s). It is a place and a reason for rethinking the limits of human and machine "overlap" and determining the humanistic, and especially transhumanist principles of existence and the improvement of man's existing physical and mental abilities". (Vertovšek, Gregurić, 2018: 101).

This transhumanist question concerns replacing parts of the human body that have ceased to function with mechanical parts proven to be better than the original biological ones. The culmination of this replacement is replacing the entire body by transferring consciousness to a mechanical body to avoid the organic death with which consciousness would also disappear; and, to erase the biological shortcomings that humans as a species have, and according to transhumanists, we will be able to do it, but what will then become of us?

8 Ivana Greguric has various papers on the topic of cybernetics, most of them are available on the following: https://www.bib.irb.hr/pretraga?operators=and|Greguric%20Kne%C5%BEevi%C4%87,%20Ivana%20%28400%29|text|profile

The representatives of this enhancement, Bostrom Nick and Eliezer Yudkowsky (2014: 326), call this process *The Uploading*. For transhumanists, *The uploading* is just another step in human Evolution when a human leaves their biological body and steps into a new field of unlimited possibilities. This transfer is one of the more significant futuristic ideas of transhumanism. Uploading is precisely the idea of loading the mind into a computer and leaving behind all the weaknesses of our biological body forever. Will we continue to call that person a human, even though all biological connections with the human have been broken by loading, or will we have to come up with another name for it is the core question of our fourth dilemma.

This possibility is science fiction for now; although it exists as an idea, its realization requires a lot of effort and time, and the results could be absent. Bostrom and Yudkowski (2014: 326) described this process in their joint work *Ethics of Artificial Intelligence* as a process in which the brain that we want to copy is first scanned to the smallest detail. Then it is divided into pieces that are loaded one by one. In this process, the biological brain is sacrificed, and consciousness itself is the one that needs to be transferred to the computer and this process has little chance of success at this time. However, for this idea to be sustainable in the future, the process needs to become more efficient and with a greater chance of success.

Therefore, improvement may be possible through genetic interventions, stem cells, by changing damaged biological parts of the body mechanically, by connecting people and machines, using nanotechnology, and loading consciousness into the computer. All of these are ideas of transhumanists, and they hope for some of them to be possible in the future as part of human evolution that will lead to transhuman and posthuman. The posthuman will represent the crown of Evolution. It will have all human possibilities integrated into them. In addition, it will have new ones that are unimaginable to us at this moment. When we have presented transhumanist visions, now we need to explore the ethical dilemmas they carry.

**Ethical dilemmas arising from the idea of improvement**

In the last part, when we discussed the ways of enhancement, we discovered some dilemmas and questions arising from this very idea. These dilemmas and questions make us believe that these transhumanistic ideas we have presented will become serious ethical and political issues in the future. We will list these

dilemmas and try to answer some questions coming from them. We will do it according to contemporary authors' opinions who are not convinced of the benefits of transhumanism as transhumanists are. In the first line, Francis Fukuyama considers transhumanism the world's most dangerous idea.[9] Also, some of the dilemmas are covered by a representative of integrative bioethics Gregurić, who is not convinced that we can manage and control our transhumanistic Evolution. (Vertovšek, Gregurić, 2018: 116)

First: Enhancement and welfare; the question coming from this dilemma is: Will enhancement bring welfare to humans or the opposite? Suppose it is possible to solve some health problems through nanotechnology and genetic engineering. What if we decide to incorporate nanorobots and are not sick but just want to improve our abilities? Will our society divide into several groups because of the enhancement of our genes? Will the gap that already exists between rich and poor grow and become insurmountable due to enhancement?

An essential aspect of this technology is its humane application, which is also pointed out by the transhumanist Bostrom (2007: 17-18). A person can make up for their shortcomings; someone who has remained disabled can get a second chance to walk. A person who is entirely disabled can get an opportunity for a new life by transferring consciousness to a mechanical body. Also, people in a coma whose bodies cannot recover enough to wake up would not have to be taken off the life support machines but would get a mechanical body, thus the opportunity to continue living. So if we put aside the transhumanist idea of achieving immortality implied by this process and look at this technological process from a medical point of view, the mechanical parts of the body would help many people to continue their lives. However, there is always a possibility that the improvement tools will be available only to the rich part of society, thus getting the opposite and making the problems of today's civilization even worse.

Despite this possibility, Bostrom believes that improvement should exist. Moreover, Bostrom, in his work *Transhumanist Ethics*,[10] says that it would be better if there were a legal obligation for everyone to improve; that it was a way to prevent only rich children from having access to interventions, thus avoiding the division of humanity into two groups.

Even transhumanists envision biotechnology as applicable in medicine; Francis Fukuyama is afraid it will overcome therapeutic purposes if we allow biotechnology:

9 https://www.au.dk/fukuyama/boger/essay/ (date of access 18/05/2021)
10 https://www.nickbostrom.com/ethics/transhumanist.pdf (Accessed 18/5/2021).

> "Genomics will permit, for example, the tailoring of drugs to particular individuals to reduce the chances of unwanted side effects; it will give plant breeders far more precise knowledge in the design of new species." (Fukuyama, 2002: 20)

He is convinced that genetic engineering and gene editing will initially be costly and accessible only to the rich. Whether it will become cheaper over time depends on the speed of that technology development. However, if it becomes more affordable, Fukuyama (2002: 80-82) believes that uneducated people will be afraid of biotechnology and will not use it. In that case, there will still be a difference between the parts of society, and it will be the genetic one. If such technology is available only to rich people, the poor will always rebel. Such a rebellion can even lead to war. We can find examples of these wars in science fiction movies such as *The Divergent trilogy*.[11]

Jurgen Habermas (2003: 51) claims that genetic engineering is a fundamental ethical and political question for humanity. As well as Fukuyama, he believes that it can affect future generations, especially those who are altered as embryos according to parents' expectations. He claims that there will be a difference between people on a genetic level, between grown and made. So, the children who were altered as embryos will feel like they are not the creators of their destiny. Habermas is placing his arguments over the dignity of such people. On the other hand, Fukuyama (2002: 156) believes that if there is no genetic lottery, those people will consider their better genetic condition as a matter of choice and something they deserve. So they can think that they are different and better from the rest.

> "They will look, think, act, and perhaps even feel differently from those who were not similarly chosen and may come in time to think of themselves as different kinds of creatures. They may, in short, feel themselves to be aristocrats, and unlike aristocrats of old, their claim to better birth will be rooted in nature and not convention." (Fukuyama, 2002: 157)

So it is very probable that this can happen in the future, that genetic intervention will be affordable only to a small part of society, and that by enhancement, we can have differences that we do not have now. We may notice the genetic difference on the list of differences dividing people. We can see examples of wars and discrimination on the genetic level in the movies *Divergent* and *Gattaca*.[12]

11 Movie *Divergent* is based on the series of novels with the same name, written by American Novelist Veronica Ruth. More information about the trilogy can be obtained on the foloewing address: https://en.wikipedia.org/wiki/Divergent_(book_series)

12 The screen of the movie Gattaca is written by Andrew Niccol who also directed the movie.

These movies tell us about the future where we have systems based on genetic differences. Moreover, some society members are treated better than others because their genome is made perfect.

Second: Enhancement and distributive justice and related questions. How will we achieve distributive justice in delivering those means of enhancement if it is even now difficult with the standard medical treatment? And what if we do not achieve it and have an enhancement in use without distributive justice? Would everyone who needs it get it?

Bostrom and Roache (2007: 24), as well as Savulescu and Person (2012: 295-297) are telling us that we can avoid our previous dilemma by distributive justice and a legal obligation to enhance. It is obligatory for all societies not to divide into groups. Nevertheless, achieving distributive justice can be difficult even for education or standard medical treatment, which are cheaper than biotechnology enhancement.

Suppose we present the possibility of replacing biological parts of the body as something in the research phase as a medical aid that will result in charity to those whose parts have been damaged. In that case, its human side comes to the fore. However, for it not to lead to the mere competitive improvement of wealthy individuals, it must be under the principle of justice, but will it be?

In the series *Altered Carbon*,[13] we have a class of rich people called Mets who have enough money to move their minds from one body to another forever, while the poor people do not have money for basic medical treatment. And Mets are acting as gods towards others, even abusing them for personal pleasure.

The legal obligation to enhance that transhumanists promote is contrary to those who do not want any improvement by biomedical means.Therefore, contrary to the position of Savulescu and Bostrom, an individual should not be obliged to improve their abilities in this way, and the improvement should not be carried out without informed consent in the context of improving health.

When it comes to education, we cannot provide distributive justice as a society. Not all people worldwide can be educated even though education is legally regulated and is not optional in most countries. If we cannot do it

It was nomintated for golden globe in 1997. More info can be fonud: https://www.imdb.com/title/tt0119177/ also on Wikipedia: https://en.wikipedia.org/wiki/Gattaca

13 Altered Carbon is an American series created by Laeta Kalogridis and based on the 2002 novel of the same title by English author Richard K. Morgan, more informations about the series avalible on https://en.wikipedia.org/wiki/Altered_Carbon_(TV_series), Book info: Morgan, R. (2002), *Altered carbon.* London: Victor Gollancz Ltd.

with education, how can we not expect that we will be in a condition to have international legislation about something that will be much more expensive than providing good conditions for education worldwide?

Third: Could we really master our Evolution?

Transhumanists believe that we will be able to master our Evolution. The transfer of the mind to the computer is the culmination of our Evolution, thus leaving its biological body forever, i.e., the limits of natural Evolution. Transhuman evolution will depend on the further advancement and improvement of machines. Transhumanists believe that, unlike natural Evolution, Evolution can be controlled by perfecting machines, which is why we should strive for it.

> "Evolution moves towards greater complexity, greater elegance, greater knowledge, greater beauty, greater creativity, and greater knowledge of subtler attributes such as love. In every monotheistic tradition, God is likewise described as all of these qualities, only without any limitation…", concluding, tellingly, "…we can regard, therefore, the freeing of our thinking from the severe limitations of its biological form to be an essentially spiritual undertaking." (Kurzweil, 2005: 280)

Gregurić (2012: 33), a representative of integrative bioethics, says that the carriers of progress convince us that the fear of a posthuman future is unreasonable because, in our hands, we hold the further course of our Evolution. However, she is not convinced that we really decide on the course of our Evolution, that it depends on a scientifically technological process that may surpass us. The question that this author asks, and on whose trail we are, is whether we can really control our Evolution once we start with a radical change of human, either by genetic interventions or by cybernetic fusion of humans and machines. Gregurić (2012: 38) claims that scientific and technological Evolution will look at human remains as a tumour on technological tissue and that humanity and everything that characterizes man will be lost once his biological characteristics disappear.

Fourth: Consequences of enhancement on human nature and its related questions. How far could we go on with the merging? Will the notion of a human actually change?

Is a person who has done something like this better or worse than an ordinary biological person? Does the intervention adds something to oneself or take away from the humanity of ordinary person. Will a person stop to replace their body parts, or will one day, motivated by the possibility of doing so, switch their mind entirely to computer hardware? So will the notion of men really change?

If we define a man by biological measures, technological merging will change them significantly. If we define them by their psychological abilities, their essence will be saved by moving the consciousness into computer hardware, but they will lose their appearance. Moreover, if we define them by both the consciousness and a biological body, they will lose half of humanity in enhancing interventions but gain some new transhuman characteristics. So yes, technology will change men.

Jones believes that such a possibility will change both humans and their environment forever. Namely, in his book *Against Transhumanism*, he says the following:

> "Replacement parts for humans will be simple to make and will have capabilities that hugely exceed their natural prototypes. Everything – the economy, the environment, even what it is to be human – will be utterly transformed." (Jones, 2009: 15)

Fukuyama (2002: 56) claims that some type of human change is already happening with the help of drugs and that it is a current danger to human nature, unlike genetic engineering, which we can expect in the future.

> "So we don't have to await the arrival of human genetic engineering to foresee a time when we will be able to enhance intelligence, memory, emotional sensitivity, and sexuality, as well as reduce aggressiveness and manipulate behaviour in a host of other ways. The issue has already been joined with the current generation of psychotropic drugs, and will be put into much sharper relief with those shortly to come." (Fukuyama, 2002: 56)

> "These developments will be hugely controversial because they will challenge dearly held notions of human equality and the capacity for moral choice; they will give societies new techniques for controlling the behaviour of their citizens; they will change our understanding of human personality and identity; they will upend existing social hierarchies and affect the rate of intellectual, material, and political progress; and they will affect the nature of global politics." (Fukuyama: 2002: 82)

So technology will change human nature, and we must be careful when it comes to its research and application.

**Need for ethics and bioethics in transhumanistic present and future**

In this part, we have two problems concerning transhumanist ideas. One is related to the present what today's research ethics and bioethics could do about the ideas of transhumanism? The other one refers to the future, and it is about two questions from the beginning of this article: 1. Are all these beings intelligent? 2. If they are, what is their relationship?

We testify to the process of development of science and technology. We are afraid of the possibility that such a development could erase everything that humanity is. We are unsure of our possibilities of controlling our scientific development once it advances. Moreover, we need to make choices and decisions now when we, as a society, have power over science.

> "So technologies will advance and it is essential that they progress. But our choice determines how fast and in which direction, technology advances. We need these elections guided not by the illusions of Transhumanism, but by the overly real problems we face." (Jones, 2009: 45)

Namely, our choices decide what we will create and how and in which direction we will manage our technological development. Let us think that due to the excessive development of technology, our humanity would be damaged. We are the ones who now, in this time, when all the mentioned things are still just ideas and attempts, so only fiction, we should decide whether we regret to implement that fiction or keep it as an idea for movies.

The critiques that Jones makes to transhumanists are mainly based on the one hand on technological difficulties in realizing their ideas. Furthermore, on the other hand, those ideas are ideas of an ideal world of the future that is difficult to realize because we do not know how direction moves the progress of science and technology.

Suppose we follow this attitude and the cited attitude of Gregurić to the application of this type of technology. In that case, it becomes clear that we need visions and real problems that we encounter and principles. She believes that in the process of cyborgization, attention should be paid to ethical principles, especially since they are mandatory when it comes to this type of improvement, Humanistic or transhumanistic principles. Since transhumanism and humanism are different options and worldviews.

> "Humanism tends to rely exclusively on educational and cultural refinement to improve human nature, whereas transhumanists want

> to apply technology to overcome limits imposed by our biological and genetic heritage." (More, 2013: 4)

Because of the rapid technology development and research on means of improvement, we need ethics. Because with this very idea of applying technology on humans, if ethics is absent, we could face difficulties in the future to return things to the old ones, when all the application processes have already started, or developments have already been completed. Since technology is irreversibly changing the human race, we could be stuck in a situation without return.

Because transhumanist ideas are still visioning of the future, inspired by the present and projections of future research, many are still in the phase of reflection and research. Since these transhumanistic ideas are still only future visions, many are not even developed yet. As such, these ideas can be considered within the domain of research ethics.

Research Ethics is essential in considering the problems that may arise with the development of artificial intelligence, genetic engineering cyborgization, and uploading. The types of research that involve developing these ideas are the place that requires the most ethical thinking because the research and development of these ideas and then their application in practice can affect our view of the world and our understanding of what it means to be human.

Therefore, it is necessary to explore what transhumanist ideas suggest, what are the ways to improve the human condition so that we can see what ethical dilemmas arise from them and so that we can find possible tools for their bioethical thinking. Furthermore, because these ideas are still evolving, Bioethics should look at them preventively and point out potential abuses or the harmful consequences of these ideas.

As science progresses, so will the need for ethics, especially in the field of research ethics. Scientific research, guided by transhumanist ideas, must be in accordance. Today researchers are in a position to make the choices and decisions about the future. That is why we must appeal to them to act as moral agents. They must be aware of the possible harmful consequences of their discoveries. In today's neo-liberal world, some of them must resist the opportunity to patent their discoveries and earn money. Scientists, more than ever, should follow the example of Maria Skodlowska Kirie and remember that science belongs to humanity as a whole.

Fukuyama points out the neo-liberal opportunities to make money on scientific developments mentioning companies interested in biomedical

research. On the other hand, there are scientists ambition for new discoveries.

> "There are very many brilliant, dedicated, energetic, ethical, and thoughtful people within the community of research scientists and doctors working in the field of biomedicine. But their interests do not necessarily correspond to the public interest. Scientists are strongly driven by ambition, and often have pecuniary interests in a particular technology or medicine as well. Hence the question of what we do with biotechnology is a political issue that cannot be decided technocratically." (Fukuyama, 2002: 185-186)

Suppose the scenario from the beginning of this article occurs in the future due to development of science and technology. In that case, we might have several intelligent beings who are not humans, requiring their moral status and rights. Then our ethics and legislation must change. Moreover, the future of humanity may depend on our capability to give them the required moral status and rights. Contrary to Savilsecu and Person, we are not convinced that society needs moral enhancement. Instead, we believe that we have to find moral education globally that aims to educate people on our scientific development as a society.

We need that education about moral dilemmas encompassed in the ideas of enhancement before we even come in a position to develop and use the means of enhancement. We do not need moral enhancement through biomedical means. We need some sort of global *paideia* and strong regulations over these developments. We may not prevent research that may occur in the future, or we hardly can influence some that are taking place in the present. For that reason, it remains for us at first to focus on building an ethical environment for that research, much earlier before we have those regulations.

Fukuyama points out that we need humanities to hold on to the rapid development of biotechnology:

> "It is only "theology, philosophy, or politics" that can establish the ends of science and the technology that science produces and pronounce on whether those ends are good or bad. Scientists may help establish moral rules concerning their own conduct, but they do so not as scientists but as scientifically informed members of a broader political community." (Fukuyama 2002: 186)

Because if we have scientifically informed community members, it will be much easier to think about dilemmas arising from the enhancement. Furthermore, we may be better at making decisions about whether we will research them or not.

**Conclusion**

First, we need to conclude that some ways of enhancement already exist and will advance in the future. Second, enhancement has already become an active bioethical issue that needs serious ethical and bioethical reasoning and reflection. As Fukuyama said (2002: 185-186), we need to consider it, and we are in desperate need of regulations for them on the international political level. Because if we just leave them to be developed and used for enhancement, we might have everything changed —ethics, politics, and life in general. We can agree on all of these opinions that we have presented. We need, at first, ethics, based on principles, and along with regulations and moral sense of scientists working on the biotechnology, especially concerning these ideas of enhancement.

If some developments are well thought out, the consequences of their results on the human world can be assumed. They do not violate basic ethical principles, and it is legitimate to investigate. Otherwise, it is legitimate to ban them.

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# LJUDSKA EVOLUCIJA U RUKAMA TRANSHUMANISTA

**Sažetak**

Mnogi transhumanisti vjeruju da nam napredak može donijeti bolji život i izbrisati neke bolesti i nekompatibilnosti u budućnosti, ali nam to može donijeti probleme s kojima se ne možemo nositi. Čovječanstvo može zloupotrijebiti sredstva za napredak. Kakvu bi nam budućnost napredak mogao donijeti? Je li moguće imati budućnost iz filmova i romana znanstvene fantastike? Kako možemo osigurati budućnost koja ima opravdanu dostupnost tim poboljšanjima? Hoćemo li evoluirati u nešto drugačije? To su pitanja koja obično postavljamo kada je u pitanju napredak. Namjera nam je razmotriti ova pitanja s bioetičkog stajališta, uzimajući u obzir i transhumanističke ideje i njihove kritike.

**Ključne riječi:** Transhumanizam, poboljšanje/napredak, prijenos, kibernetika, istraživačka etika.