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BIOTECHNOLOGICAL INTERVENTIONS INTO HUMAN NATURE WITH EMPHASIS ON SEXUALITY (A BIOETHICAL VIEW)

Summary. In this article the author focuses on the biotechnological interference (its accompanying tendencies) to the human nature, specifically human sexuality in the view of bioethics. The author outlines, analyses and evaluates practical and possible ethical problems, which are caused in this field by our selected biotechnologies.

Keywords: biotechnologies, tendencies in biotechnology, bioethics, human sexuality, induced abortion, contraception, new reproduction technologies, transsexualism, cloning, artificial womb.

BIOTECHNOLOGICZNE INTERWENCJE W NATURĘ CZŁOWIEKA, ZE SZCZEGÓLNYM UWZGLĘDNIENIEM SEKSUALNOŚCI (PERSPEKTYWA BIOETYCZNA)

Streszczenie. Autorka koncentruje się na biotechnologicznych zakłóceniach (i towarzyszących im tendencjach) ludzkiej natury, w szczególności ludzkiej seksualności z punktu widzenia bioetyki. Autorka nakreśla, analizuje i ocenia praktyczne i prawdopodobne problemy etyczne, które są na tym polu spowodowane przez wybrane biotechnologie.

Słowa kluczowe: biotechnologie, tendencje w biotechnologii, bioetyka, ludzka seksualność, wymuszona aborcja, antykoncepcja, nowe technologie reprodukcyjne, transseksualizm, klonowanie, sztuczne łono.

Biotechnology is getting more and more to the centre of discussions predominantly under the influence of the advance and penetration of new genetic technologies. Biotechnologies (understood in the broader sense of the word as biological and biomedical technologies) are currently considered to be the key technologies of our times and represent any technology that

uses biological systems, living organisms, or their derivatives, to produce or modify products or processes for specific use.¹ They also include genetic modifications that represent only a part of biotechnologies and are used to produce new combinations of a particular genetic material by transferring individual genes in the form of their carrier – DNA – into other organisms, in which they have not been present at all.²

The bio-scientific and biotechnological progress not only extends the known forms of conduct, but also brings new types of interventions. And it is frequently the human organism that is the object of these interventions and “as something that has been natural until now” it moves more and more to the area of purposeful interventions bringing, at the end, or causing disappearance of “the boundary between the nature that we “are” and the organic endowments we “give” to ourselves”³. This fact is pointed out by several authors stating that modern science allows us not only to repair our biological constitution, but also enhance it⁴ and that the new biomedical technologies bestow a non-traditional definition on the medical science when its purpose consisting in treatment is gradually transformed to the purpose consisting in “enhancement of man”.⁵

However, the development of new technologies also changes our understanding of life and nature, bringing unprecedented ethical questions, such as: Is human nature, substance (genetic information of mankind) “sacred”, untouchable or not? What is human nature (substance)? Even though we do not intent to give a comprehensive explanation and, considering the extent and depth of this issue solved by natural as well as social sciences, this is not possible, we would like to emphasise that most scholars nowadays incline to the socio-biological interpretation. Man, and his nature, is viewed as a biological-social, or bio-psycho-social being, this resulting in a conclusion that modification of one of its components has an impact on the human nature as such.⁶

Man, from the very beginning of his existence, has constantly tried to improve his biological givens, first in an effort to compensate the imperfections of his biological species compared to other species. Later on, these compensations started to exceed the limits of the living nature until they became an integral part of human body thanks to the progress of modern sciences and technologies. Nowadays, this enhancement is standing on the threshold of a radical turn, since it can affect the very biological substance of humanness. Scholastic

¹ Convention on Biological Diversity, 1994, Article 2.

² Bartíková M., 2007, Etická reflexia nových biotechnologických metód. Génové manipulácie. [in:] Kovaľová, D. (ed.), Bioetika a aplikované etiky. Banská Bystrica: Univerzita Mateja Bela v Banskej Bystrici, Fakulta humanitných vied, p. 49-62.

³ Habermas J., 2003, The Future of Human Nature. Cambridge. Polity Press: 12.

⁴ Matějková E., Sýkora P., 2011, Kognitívne vylepšovanie človeka, evolúcia a etika. [in:] Kelemen, J. et. al. (eds.), Kognice a umelý život. Opava: Slezská univerzita v Opave, p. 255-267.

⁵ Judin B.T., Lukov V.A., 2006, Gumanitarnaja ekspertiza. K obosnovaniu issledovatelskogo projekta. Moskva: Izdatelstvo Moskovskogo universiteta, 2006.

⁶ Lešková Blahová A., 2011, Krátke zamyslenie sa nad problémom (modifikácie) ľudskej prirodzenosti. Cited online. <http://www.pravo-medicina.sk/aktuality/309/kratke-zamyslenie-nad-problemom-modifikacie-ludskej-prirodzenosti>.

literature distinguishes two types of processes in this context: cyborgisation of human body (e.g. integration of microchips in body) and biological modification (“upgrade”) of human body (e.g. interventions into the molecular structure of living organisms aiming to create even totally new modified organisms with the help of modern biotechnologies).⁷

The development of biotechnologies thus brings several issues:

- the issue of preparation of a safe and efficient technology in accordance with the adopted scientific standards;
- the issue of subordination of each biotechnology to internal (scientific) expertise within the medical community (concerning its effect and safety);
- the issue of harmony and consensus of biomedical innovations and the system of collective (social) ideas and values;
- the issue of abuse of biotechnologies (if there is no clear normative regulation).⁸

At the same time, the development of biotechnologies corresponds to the hopes and needs of people who hope to materialise their ideas of good health, long life etc. with the help of biological and biomedical technologies.

This paradox is also present in the discussions trying to solve whether or not it is possible to agree to implementation of biotechnological innovation bringing about “modification” of human nature. Can such innovations be allowed? We believe that now it is too late to ask such a question. Biotechnologies are a reality that needs to be reflected by solutions on the theoretical as well as practical level, which opens a wholly new dimension to bioethical discussion. Our reasoning is based on the acceptance and examination of the abovementioned paradox of situations that biotechnologies bring about (as mentioned above). The example of human sexuality (a “component part” of human nature) illustrates various real and possible tendencies of the changes of human nature (enhancement or “man’s becoming the other”). Considering the complexity of this issue, some authors (Judin, Poljakova, Tisčenko and others) work with the notions of reconstruction, construction, deconstruction and destruction representing mutually competitive tendencies (as accompanying features of biotechnologies) appearing in discussions that can be used in examination and evaluation of real or possible (future) modifications of human nature (human sexuality).

Reconstruction is that tendency of behaviour that focuses on restoration of the lost form. In the bioethical context, the recovery of the lost health represents a quite characteristic, although not the only, illustration of its example. In fact, it is the activity aiming to recover the wholeness of human nature, it is as if localised in past, it was broken and needs to be fixed, restored.

⁷ Matějková E., Sýkora P., 2011, Kognitivne vylepšovanie človeka, evolúcia a etika. [in:] Kelemen, J. et. al. (eds.), *Kognice a umelý život*. Opava: Slezská univerzita v Opave, p. 255-267.

⁸ Poljakova V.V., 2009, Transformacia roli experta v situácii rizika i neopredelennosti pri vnedrenii biotechnologij, [in:] *Sociologičeskije issledovania*, No 10, Oktjabr, p. 100-108.

Construction means the tendency to create a new form, it is localised in the presence. Unlike reconstruction, it presupposes an element of innovation, discovery or creation of a new form of human substance (or existence). As a result of construction, the original biological substance of man is changed resulting in a new (more perfect) form.

Deconstruction is characteristic for the process of a change of human substance based on individual or collective preferences to the requested form (it is, therefore, localised in future). Distinctive of deconstruction is the fact that value as well as wholeness of a human being can be expressed by the idea of potential being. In this case, the “human in man” is something which was, or is, created here and now, but is cultivated by the possibilities brought by the human sciences with the aim to obtain new biological, psychological, social and other qualities.

The three above-mentioned tendencies are interconnected with the past, presence and future and are distinguished depending on the time of implementation of the innovations influencing human nature. However, the fourth tendency changes everything and brings the immanent features of “without time” into the situations of modification of human substance (by way of biotechnologies) producing unheard of consequences of such changes.⁹ Here, we can use the words of H. Jonas who pointed out in the early 1960s that rapid development in the area of biotechnologies would inevitably lead to such consequences of human behaviour that would be unpredictable and uncontrollable.¹⁰ And this tendency can be labelled as destruction.

Destruction appears as the effect of the implementation of biotechnological modification, as the effect of unpredictable and technologically uncontrollable impacts of the three above-mentioned tendencies. That, which returns back to man in the form of diseases, ecological problems and global anthropological and ethical risks. Here, man not only faces the future (in the horizon of presence), but is also “thrown” in a situation of “im-possible” that he does not know and is unable to realise what such a situation can mean. Man loses the opportunity to know himself as the subject of behaviour, conduct. And the notion of behaviour loses its original meaning as well.¹¹

Now, we will try to define and analyse some fundamental ethical (anthropological) issues that have resulted from the biotechnological progress in the area of human sexuality. Our selection will be illustrated by the above-mentioned tendencies of biotechnologies emphasizing human sexuality. Nevertheless, analogical tendencies can also be seen in genetic technologies, cell engineering technologies, new technologies of dying and death, transplantations of organs and tissues etc..

⁹ Tisčenko P.D., 2008, Vystuplenie na Kruglom stole „Modifikacia človeka. Naučnyje, technologičeskije i morál'nyje granici“. [in:] Čelovek, No. 1, p. 108-110.

¹⁰ Jonas H., 1997, Princip odpovědnosti. Praha: OIKOYMENH, 1997.

¹¹ Tisčenko P.D., 2008, Vystuplenie na Kruglom stole „Modifikacia človeka. Naučnyje, technologičeskije i morál'nyje granici“. [in:] Čelovek, No. 1, 2008, p. 108-110.

Let us begin with the moment when biotechnological innovations became legitimate owing to their re-constructional potential and objective. In the next stage, they started opening many unpredictable opportunities in the area of generation of new forms of substance and existence of man that have become destructive. Each repeated technological success (in the given situation) boosted accumulation of the potential of human power, creatively expanded the control over its own processes, but also brought a by-product in the form of unpredictable dangers that have not disappeared, on the contrary, they have multiplied demonstrating destructive tendencies in the innovations.

Induced abortion is not a new issue in bioethics. We know that there is some history behind induced abortion. However, it became a medical issue, a subject of scientific research and technological enhancement by the end of the 19th and the beginning of the 20th century. First, as a form of medical help to women jeopardised by delivery, that means as a re-constructional form of behaviour combining the idea of averting the risk with the idea of woman's life saving.

This reconstruction could only be carried out with the help of new, scientifically supported technologies. As soon as the new technologies used to induce abortions became safe, they revealed additional opportunities for use, but now with a changed motivation. We speak of the "abortions at the desire of women" that were not conducted by professionals (doctors) and, therefore, such unprofessional procedures often damaged their health and many times ended with their death. Saving lives of women, averting damage to their health – these were the main objectives followed by the abortion legalisation process in the first stage, the more that the technological background had already been created.

The second stage was characteristic for the legalisation of induced abortion in the form of women rights movements undertaken in various countries and, even though it may sound paradoxical, it preserved the idea of the necessity of medical aid. The re-constructional tendency in this case can only be maintained based on a constructional change of the original notion of man's nature. It is not about lifesaving that was followed in the first stage of development of medical technology, but about restoration of woman's freedom, her ability to plan her life and decide about her life. That means that the constructional tendency in the modification of the reproductive function of man allows us to re-formulate the re-constructional meaning of technology and maintain the status of medical aid.

Innovative changes emphasising the modification of human nature were also conditioned by the main trends of development of the European culture. Childbearing has ceased to be a natural process and an attribute of human sexuality that is a natural part of the lives of people, and was subjected to selection, rational behaviour, control, and planning. The anthropological consequence of induced abortion as a medical technology was the separation of the attribute of childbearing and delivery from the notion of sexuality – first, as a shift from the anthropological reality that is natural into the reality that only can be. This also has ethical aspects, since it concerns transfer inherently present in the very idea of purposeful behaviour

that will have to undergo examination. It applies for example to the solution of such issues as having children of desired sex and further medical and genetic questions.

The technology of induced abortion is the first, quite simple step, in deconstruction of man's sexuality. It has radicalised as a consequence of the development of contraception technologies.

Just like induced abortions, contraception has been known in history, too. However, its metamorphosis into a form of medical aid and scientific issue took place quite recently when contraception became widespread in the second half of the 20th century.

The direct consequence of reconstruction of medical technology focused on production of contraception preparations include several social, ethical and psychological constructional innovations – modifications of man that lead to formation of new images and models of human life. There, sexuality is “split” into sex (that exists relatively independently) and family with one of major functions being care for children (childbearing). Scholarly literature calls this a sexual revolution (1960s). It resulted not only in construction of new forms of human lives, but also in a more radical shift in the understanding of anthropological attributes from “is” to “can be”, which can affect all other, still traditional, forms of life. A good example is sex that (as a form of life) cannot be connected only with the concept of childbearing anymore, which can (and often does) result in indifference to (traditional) division to “male” and “female” attributes. The feeling of naturalness has disappeared and heterosexuality along with homosexuality becomes one of the possible forms of sexual orientation. Sexuality thus undergoes the process of deconstruction, transformation, and man can (having free choice) choose this or that form.

Further changes in the sexuality of man are brought by the transformation of reproduction processes – new reproduction technologies (as methods of asexual reproduction of man).

Technologies focusing on induced abortion and contraception controlled the childbearing process and prevented it “from the outside”. New reproduction technologies penetrate the natural process of childbearing bringing about many ethical and anthropological issues. Despite that, the initial stage comes as an implementation of re-constructional tendencies (as restitution, restoration of wholeness), which allows their creation and improvement as forms of medical aid from the very beginning. “Illness” treated by these technologies is infertility. They do not treat in the sense of a “repair of an error” in the organism of woman or man, but in the sense of creation of artificial technological systems replacing the natural ones.

It is important that we realize that in this case fulfilment of re-constructional tasks is implemented as a construction of new, technologically changed, reproduction forms. Artificial insemination is nowadays represented by several technologies and the “in vitro” technology with subsequent implantation of embryo into woman's womb is one of the most known. As mentioned above, re-constructional technologies (as a constructional innovation) inevitably bring about the processes of further deconstruction of man's sexuality.

Induced abortion and contraception isolate sex from childbearing, but still remain connected with family. Artificial reproduction technologies split, and make dependent, the natural forms of self-identification within family: mother, father, son, daughter, grandson, granddaughter, grandmother, grandfather etc. – each of them is “split” to “biological” and “social”. For example, biological father – the sperm donor – is not social father, i.e. the father that raises and takes care of the child. In the event of *in vitro* insemination, there are variants with one of the parents, or even both of them, “split” when the inseminated ovum can be implanted into the mother’s womb (future social mother) as well as into the womb of surrogate mother (and these combinations can be supplemented with additional ones). This way, the child can have two fathers and three mothers, three mothers and one father, or two fathers and two mothers etc.. Another, more frequent, variant includes a mother carrying a child who is the mother of the future social mother “creating thus a series of hybrid self-identifications”.¹² The child born can be a son as well as a grandson for the woman who delivered him and she can be a mother as well as a grandmother for the child. For the social mother, such child is a son as well as a brother and she is a mother as well as a sister. However, all of that means that family changes from something natural to a specific phenomenon that uses various options and elements producing these or other combinations. When talking about “*in vitro*” insemination, we have to point out another biotechnological option, which is selection of sex. Intentional selection of sex can be, according to Ondok, motivated by an illness genetically connected with sex or some social and cultural background (e.g. preference of males in India and several Asian societies) or with a wish of a family in which children of one sex are born only.¹³

And so under the influence of new reproduction technologies, man even more subdues his sexuality to deconstruction.

The processes of deconstruction of man’s sexuality are subject to further radicalisation as a consequence of development of transsexuality. It is evident that medical technologies focused on the change of sex are originally created as purely re-constructional forms of medical aid predominantly in connection with treatment of various forms of hermaphroditism, this being true even if the aid is not given in order to restore the original form, but to create it anew. Reconstruction is thus implemented in the form of construction.

The constructional tendency can also be seen where the cause of transsexual modifications is not biological (related to the development of genitals of an individual), but rather psychological and moral. Individual realises that he/she does not want, and cannot, exist in the body of man or woman (given by nature) and, therefore, he/she asks doctors for aid (surgical and hormonal) to change his/her sex (that he/she was born with). Medical technology thus constructs the desired sex at “patient’s” desire and creates man or woman

¹² Tisčenko P.D, 2008, Vystuplenie na Kruglom stole „Modifikacia človeka. Naučnyje, technologičeskije i moral’nyje granici“, [in:] Čelovek, No. 1, p. 108-110.

¹³ Ondok J.P, 2005, Bioetika, biotechnologie a biomedicina. Praha. TRITON s.r.o.

from the biological potential – the body. This changes the once given forms comprising the basis of sexuality of man or woman to social constructions.

Another stage in the human sexuality deconstruction is the cloning technology. Cloning designates the process of producing identical organisms, i.e. organisms with the same genetic material as the material of the organism they are taken from. As a reproduction technology, cloning does not focus on creation of man through a combination of two individuals (mother and father), but taking one individual (sex is not important), i.e. it eliminates the significance of “male” and “female” sex that has lied behind the dynamics and cultural development of mankind as well as individual evolution of man. Advocates of cloning see the advantages of this technology in the opportunity to solve various medical issues (some forms of infertility) or to help people who lost their close relatives by creating their clones (biological copies). It is not difficult to realize that reproductive cloning as an innovation technology focused on construction of man represents also a form of deconstruction of human sexuality as an attribute pertaining to man. The division to male and female is not important for reproduction. Even the difference between them will not be important anymore, because it will be possible to change sexual orientation (at wish).

Another example of possible deconstruction of human sexuality in future is the “artificial womb”. This is not a utopia anymore, but a real scientific intent. Its implementation will allow scientists to gain control over the whole process of birth of man, i.e. from man’s creation – insemination, until man’s birth. Sympathisers believe that this will allow us to discover and treat many hereditary pathological disorders, a woman will be rid of the risks connected with pregnancy, which means that the re-constructive purpose of this intent is defensible.

However, the constructional tendency is not the case here, since this is one of the most radical modifications of human nature, for this important biological process would take place outside human body and it would be realised by purely mechanical constructions. It is also necessary that we realize that artificial womb is not the same construct as other artificial systems (artificial kidney, lungs, heart...) that protect health and life of a natural body that is given to use from nature, and that in fact “fix” a particular affected organ. Artificial womb will take the natural process of reproduction out of human body and make it unimportant and unnecessary, and will transform it into “technical system”. Even “womanliness” put only on the level of sexual orientation will be deprived of the attribute of motherhood. Radical changes will affect the very self-determination of man conceived by the cloning technology and “delivered by a machine”. Moreover, man’s natural connection with the other man will be reduced to cell donation.

The above (bio)medical technologies are connected with many ethical issues that we tried to outline and identify emphasising actual and possible changes of human (biological) substance with impact on man’s sexuality. It is evident that technologies in this context bring

many unconceivable, uncontrollable and unpredictable risks that are growing and becoming global in actual situation.

Therefore, we have to learn to distinguish between individual techniques of biotechnologies that are, as such, neutral unlike scientists, geneticists, doctors and other specialists. However, attention should be paid not only to them, but also to the objectives and intents followed by these techniques. Last, but not least, it is necessary to also identify the consequences resulting from such behaviour. We have already said that the question is not whether to permit biotechnologies or not. It would be a mistake to generalize the question of moral (in)admissibility of these techniques to the area of medicine or genetics. Their a priori refusal can rather be ascribed to lack of knowledge and maybe even the fear of the unknown. Therefore, it is necessary for the scientific research to incessantly receive critical reflection and evaluation, i.e. social process of evaluation, consideration over the advantages or dangers and issues connected with the implementation of new technologies and knowledge.¹⁴ After all, we have already made an intervention into human nature and, sooner or later, it will get to the surface and affect man, as we have illustrated focusing on human sexuality.

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Omówienie

Zdolność do nieustannego zwiększania swoich możliwości i umiejętności jest cechą charakterystyczną dla człowieka, który nigdy wcześniej nie starał się wyjść poza swoje biologiczne granice. Artykuł ten koncentruje się na tzw. biologicznych uaktualnieniach ciała człowieka, co jest połączone z rozwojem biologii molekularnej i pokrewnych biotechnologii (technologie biologiczne i biomedyczne), które zaczęły się rozszerzać od lat 50. XX wieku. Granice dla takich innowacji biologicznych są badane przez bioetykę, która skupia się na poszukiwaniu odpowiedzi na pytania, które zostały postawione w tej dziedzinie, pokazując konieczność gruntownej refleksji etycznej. Postęp biotechnologiczny ma również wpływ na obszar ludzkiej seksualności, co spowodowało pojawienie się złożonych problemów etycznych, które zostały wyszczególnione w artykule. Istotne są zwłaszcza takie kwestie, jak: aborcja, antykoncepcja, nowe technologie reprodukcyjne, transseksualizm, klonowanie i tzw. sztuczne łono.