
New Future With Human Gene Modification

Human Gene Modification may have its positives, but it is dangerous to our society and may damage what makes us human.

What is it that makes us human and differentiates us from all other species? Humans have superlative brain development and thus we experience a range of emotions and behaviours unlike any other living things. We feel passion, love, hatred to the extreme and behave and act in response to these emotions. This makes us unique and links us in our shared humanity. Now imagine that into the future, we could modify people's genetics, a tweak here and a change there, to regulate and standardise the very things that make us human. Perfect academically and physically.

In defining Genetic Modification, Live Science contends, "Genetic modification is the process of altering the genetic makeup of an organism." Let's be clear, this has been occurring naturally for thousands of years through evolution. Humans have harnessed this process and with the aid of modern biotechnology, have made altering specific genes in an organism far easier and faster than ever before. Genetic modification is already being used today in the farming and agriculture industries. Food Standards Victoria states, 'it is now possible to make a copy of a particular gene from the cells of a plant, animal or microbe, and insert the copy into the cells of another organism to give a desired characteristic.' This is today, so imagine what could be possible in our foreseeable future.

Many scientists are predicting worldwide human genetic modification will be a reality in our future. In the United States, parents using IVF can now choose not only their baby's sex but also eye colour. What comes next? Choosing your baby's skin tone? Cognitive ability? This form of playing God is fraught with danger. We only have look back fifty years to see the segregation that occurred when white skin was perceived as superior. If we start modifying genetics to create a race that all have the same skin, we exclude others who cannot afford to participate and we end up right back where we were in terms of prejudice and discrimination.

Scientists and writers have many different views on this technology, looking at its benefits but also its weaknesses. This has also caused many writers and directors to write or film their perceptions of this new technology using many different techniques. Feature films, Hollywood blockbusters, short films, short stories and non-fiction long reads have explored the imagined possibilities and the cautionary warnings about ethics and risks for decades.

Andrew Nicholl's *Gattaca* (1997) exemplifies a future where your genetic composition decides your life opportunities and your social status. Central character Vincent is born naturally and is immediately given his life expectancy of 30.2 years due to a heart defect. His life opportunities are reduced due to the discrimination of his genes and people in his society. The rocket lab 'Gattaca' where Vincent wants to work at, only accepts the genetically modified elite which signifies the first issue which could be caused by Human Genetic modification. What happens to the rest of us? Would it be the same as *Gattaca* where people are discriminated against due to their genes? Imagine what this would do to our society. Racism, hatred, segregation would abound. It is Vincent's human spirit which prevails against all odds as he finally gets to

experience his dreams and reaches space. Clearly it is the very human qualities that people have tried to remove which are ultimately the most important.

If we were all perfect what would it mean to be human? Would we still be human? As humans we make mistakes and learn from them. This is like Vincent in Gattaca when he shows all his spirit and heart to beat his perfect brother Anton in a swimming race. This human spirit is signified after the final race when Vincent tells Anton, "This is how I did it, Anton: I never saved anything from the swim back." Humans will show grit and determination to achieve greatness. Would this drive be taken away if we were all perfect? The problem is if we were perfect or what we thought was perfect there would be no possibility of improvement or advancement. Our society would stagnate and the human characteristics of will and drive and desire would disappear. Therefore Genetic Modification's greatest danger to the human race is the perfection it may create could ultimately destroy humanity itself.

It is true that Human Genetic Modification may have hugely negative implications for what it means to be human but we must not discount that this technology also has benefits. Human Genetic Modification may be our solution to genetic disorders and diseases one day. Just imagine a world where we could save millions from the deadliest diseases due to this technology. Labiotech explains that 'Human genetic engineering can potentially cure cancer, blood disorders, blindness, aids, Cystic Fibrosis and Muscular Dystrophy'. This being said, the process of gene editing can also be extremely dangerous for our health. A recent study done by Professor of Research at Cambridge University, Dr. He Jiankui provided terrifying results. AIDS positive subjects who received a secondary copy of a specific gene (HIV-1 Gene) in an attempt to provide greater resistance to the disease in fact died at rates 21% higher than their fellow trial subjects who received one or no copies of the gene clearly exemplifying the perils of this technology.

There are those who also argue that this technology could also benefit humans by increasing lifespan through slowing down the aging process. The daf-2 gene controls our aging through metabolism and cell growth / loss. The 'Genetic Control of Aging and Life Span' article by Dr Jill U. Adams explains that, if we could mutate the daf-2 gene we could possibly increase human life expectancy, but is increasing life expectancy a real positive?

This increase in longevity may seem positive but it also comes with many downsides. Firstly, Individuals who are genetically programmed to live longer will experience the loss of many of their close friends and family, including many in younger generations and risk rising levels of isolation and loneliness as a result. A sizeable number of the individuals in question could experience higher levels of unhappiness than their contemporaries who will die before them. Furthermore, this increase in life expectancy will lead to population increase which can have several negative impacts such as strain on natural resources causing mass famine and water scarcity. Higher populations will also increase usage of resources therefore increasing our demand on fossil fuels and other non-renewable energy sources. This could wreak havoc on our environment raising the Earth's temperature and leading to catastrophic consequences for our global climate.

As a doctor, Professor and Honorary PhD in Future Genetics, I have seen, firsthand the profound affects that genetic modification can have on a person's wellbeing. Ultimately, it was my test trial, 'New Humans: A study of the Potentials and Dangers of Genetic Modification – 2018' that clarified and consolidated my position on this topic. After my discovery of the

cancerous gene responsible for Multiple Myeloma (Blood Cancer) I took one hundred sufferers, across a range of ages and socio-economic backgrounds and employed a 50/50 change and control protocol, with 50% receiving gene modification and 50% receiving current standard treatment. The results were disturbing. The Added genes in the 50 % of the people who I exposed to this treatment fell unusually sick. Their conditions deteriorated and within a month of the study all 50 were dead. I hypothesise that the people probably died due to their new genes mutating and causing the subjects bodies to experience unfamiliar genes, therefore causing their bodies to shut down. This has shaped my perception of the lack of positive possibilities of gene technology at this point in time.

In Conclusion, Genetic modification would have a profound effect on what it means to be human. To portray my overall message, I must go back to this question. What does it really mean to be Human? What changes us from everything else? The answer is our emotions. How we experience a wide range of feelings in varying situations. These very complex emotions we take for granted could be taken away from if we pursue this technology. These perceptions of this future technology have been revealed in many long-read articles. Many Fictional novels and films like Gattaca have also been used to predict and theorise a future with human genetic modification. We have also discussed some counter arguments supporting this technology and discovered that these so-called benefits also have their clear weaknesses. Without question, Human Gene Modification may have its positives, but it is extremely dangerous to our society and may damage or eradicate what makes us human.

Bibliography

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