

12

Genetic Enhancement in Light of Christian Theology

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Introduction

In 1977, Isaac Asimov stated that “the advance of genetic engineering makes it quite conceivable that we will begin to design our own evolutionary progress.”¹ His prediction remains prescient today. With rapid advancements in science, society has begun to delve into technologies that could redefine what it means to be human. Developments in artificial intelligence and nanotechnology offer the possibility of altering humanity as we know it and of going “full cyborg.”² New progress in CRISPR/Cas9 has allowed scientists such as He Jiankui of Shenzhen, China to genetically enhance embryos with HIV resistance during IVF. These technologies create vast possibilities for the future, some beneficial and others extremely harmful. Many of these technologies have allowed the genetic manipulation of human DNA, such as through genetic engineering, and have consequently sparked serious ethical debates.

Broadly speaking, genetic engineering involves the intentional alteration or manipulation of genetic material within an organism through the use of DNA technology. Genetic engineering has produced beneficial gains in many areas of medicine and scientific research, such as pharmaceuticals and agriculture.³ Disease-resistant plants and the mass production of insulin are just two of these important benefits. Within the realm of genetic engineering lies human genetic enhancement (GE): the use of technology and science to genetically improve human functioning, capabilities, and performances beyond the normal workings of the human body.⁴ While genetic engineering has been advantageous to society, GE brings about many ethical concerns as its sole purpose is permanent human transformation beyond the norm.

It is important to note that within human genetic engineering, varying types of alterations affect different cell lines in the body. Somatic gene therapy, for example, seeks to

alter genes within somatic cells to correct genetic defects and restore normal bodily functions, thus preventing or curing genetic diseases such as cystic fibrosis and certain cancers.⁵ Somatic cells include any cell of an organism other than the reproductive cells. As a result, these somatic gene therapies affect only the patient being treated and do not pass any genetic changes to future generations. GE, on the other hand, aims to modify genes within the germline and enhance the capabilities of an individual beyond what is normal or humanly possible.⁶ Germline alterations occur within the DNA of gametes or reproductive cells and could potentially be passed from generation to generation with unknown side effects. Given this distinction, how should society approach GE and the intent of permanent human germline alteration?

In response to the growing field of genetic technologies, Nigel Cameron suggests that we must view these rapidly advancing technologies such as GE with the mindset of “a tradition of healing” when considering their morality.⁷ GE wanders far beyond the realm of healing, delving into transhumanist goals

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of recreating a utopian, everlasting human race. This article aims to evaluate the ethics of GE through an evaluation of three scholarly writers' perspectives on the topic: Julian Savulescu, John Harris, and Brent Waters. The subsequent section will outline a Christian analysis of GE in light of the Creation, Fall, and Redemption of man. In summary, this article will argue that GE is not appropriate for permanent human alteration as man's identity is not found in his individual traits and characteristics alone, but rather is found in Christ.

Julian Savulescu

Julian Savulescu, Director and Professor at the Oxford Uehiro Centre for Practical Ethics, avidly advocates for GE. He goes so far as to claim that society possesses a moral imperative to improve future generations through GE by bettering individual traits and capacities of humanity.⁸ These traits and capacities include fairness, responsibility, empathy, and physical and cognitive abilities. Savulescu argues that improving these traits and capacities subsequently improves one's quality of life and personal autonomy.⁹ However, the goal here is not to temporarily modify humanity, but to permanently alter human life. In the same vein, Resnik and Vorhaus state that "the *sine qua non* of genetic modification is permanent genetic alteration: the intentional production of human offspring with artificially induced genetic changes."¹⁰ Savulescu believes that this improvement can be achieved through rapidly evolving technologies that will decrease imperfections, disease, and illness and increase intelligence, thereby increasing one's quality of life.¹¹ Unfortunately, according to Savulescu, little progress has been made due to society's fear of embracing these new technologies.¹²

Savulescu goes on to explain that some of these genetic technologies are not sufficient for permanent human alteration and therefore do not increase quality of life. He argues that current tools such as prenatal genetic testing (PGT) and genetic selection are insufficient for enhancement as they only identify single gene mutations, such as cystic fibrosis or muscular dystrophy, and often produce a subsequent abortion of the host.¹³ Since there is no actual healing of the embryo, the most common polygenetic diseases and traits, such as schizophrenia or intelligence, are unable to be enhanced by

PGT or genetic screening. Savulescu's solution to this so-called issue is to label genetic selection and PGT as outdated practices and substitute these technologies with GE.¹⁴ He goes on to proclaim that humans are imperfect, morally inept specimens harboring myriads of social, psychological, and genetic issues. By harnessing GE, the possibility of resolving these complex issues becomes more tangible, subsequently improving one's quality of life.

In response to Savulescu's praise of GE, one must ask, who defines the ultimate quality of life? History provides a plethora of examples of individuals, families, and even entire nations attempting to enhance the quality of life of its members, leading some to embrace eugenic practices such as selective breeding or forced sterilization. Each of these entities has varying notions of what improvement and enrichment truly means, as do



all humans. Because each human is vastly different from the other, with differing beliefs, goals, and mindsets, no meaning of one's quality of life is universal. Enhancing humanity's quality of life therefore becomes open-ended and unpredictable, ushering in more ethical and moral issues to address.

Savulescu also fails to consider the safety of GE. Despite the limited knowledge of GE's consequences, Savulescu adamantly claims that permanent genetic alteration will only result in positive outcomes for the human

race. This bold claim disregards the myriad of still unknown side effects of GE. For example, He Jiankui may have had a therapeutic intent when enhancing embryos with HIV resistance, but there is no guarantee that these embryos will not suffer future side effects of this genetic alteration. If future negative side effects do arise from GE, then one's quality of life may actually degrade as a result. It is severe speculation to assume that GE will only bring about enhanced quality of life with no ramifications or harm done to the individual.

In his article "Autonomy and Enhancement," Savulescu presents his second argument for GE, that of personal autonomy, a quality he believes is essential to the human race.¹⁵ He notes that underlying every variation of autonomy there are certain common features that assist individuals in making autonomous decisions such as cognitive functioning.¹⁶ As technology progresses, these cognitive functions could be greatly improved by GE, strengthening one's ability to make choices that accompany a self-governing, autonomous person. The first step in this process is to recognize logical competency, critical analysis, and comprehension as the building blocks of autonomous decision-making.¹⁷ Logical competency and critical analysis involve one's ability to reason, evaluate options, and weigh consequences, while comprehension refers to one's capacity to process, understand, and integrate basic intellectual concepts.¹⁸ These features promote thought processes that encourage autonomy. Not only that, but increased cognitive enhancements help breach many barriers to personal autonomy, such as psychological manipulation, paternalistic approaches by physicians, and discriminatory attitudes.¹⁹ To summarize Savulescu's thought, by increasing competency, critical analysis, and comprehension through GE, personal morals and belief systems are more strongly established, which further increases and cements individual autonomy.

Savulescu emphasizes that this improvement in cognitive functioning and thus one's future autonomy must take place on the embryonic level. Savulescu's principle of procreative beneficence states that parents have a moral obligation to select the child, out of all their possible children, who will be likely to lead the best life.²⁰ In this case, parents would select embryos found to have

genes correlated with greater intelligence, therefore providing that embryo an opportunity to be a fully functioning, autonomous member of society. He bolsters this argument with recent studies that claim to have made significant progress in identifying genes correlated with greater intelligence. Through increased intelligence, the child's ability to communicatively engage with the world is improved in ways that will foster his personal identity.²¹ By using skills of comprehension and analysis, children are able to gain information on the surrounding world and make informed, autonomous decisions.

Savulescu's embrace of personal autonomy is in direct conflict with his desire to genetically alter and enhance human embryos. In fact, genetically altering a human embryo expressly violates that individual's future autonomy. Although genetic manipulation may one day increase a child's cognitive ability or interpersonal skills, this genetic manipulation of an embryo destroys the child's opportunity to choose a truly "open future." This preemptive decision-making guarantees that when the child is an adult, certain options will already be closed to him, thus violating the possibility of full, autonomous decision-making by the child.²² To Savulescu this genetic alteration is just as acceptable as common parenting decisions, such as what the child will eat for dinner or what to wear to school. Yet his argument fails to acknowledge the permanent consequences that GE has on the child and belittles the impact of GE down to that of a common parenting decision. In addition, the question still remains as to who defines what the "best life" entails. Savulescu's procreative beneficence is ultimately an open-ended and subjective method of determining the worth of human life.

Not only does GE violate a child's future autonomy, GE also treats children as merely a means to an end, not as an end in themselves.²³ This treatment occurs when children are unable to provide input on the purpose of the imposed form of GE which subsequently inhibits the formation of the child's personal identity.²⁴ Because the child's natural identity is contrived solely by the parents while the child is still embryonic, the child's autonomy is stripped away. According to Rae and Cox in their book *Bioethics*, "autonomy literally means 'self-law' . . . and refers to the freedom that a

person has to order his or her life according to his or her own desires and values. It involves independence, self-reliance, and . . . the right to be left alone to pursue life as



one sees fit."²⁵ When looking at this definition, Savulescu could dare not claim that in his proffered scenarios, the child was truly given "the right to be left alone to pursue life as one sees fit," which is an essential aspect of full, personal autonomy.²⁶

John Harris

John Harris, British bioethicist and director of the Institute for Science and Innovation at the University of Manchester, also advocates for the use of GE. Harris is well known for his permissive and liberal approach to new biotechnology. In his book *Enhancing Evolution: The Ethical Case for Making Better People*, Harris introduces his personal definition of human enhancement and comments that "an enhancement is by definition an improvement on what went before."²⁷ Harris acknowledges that GE will not definitively provide benefit in every case but argues that even the notion of possible improvement through GE makes it good, morally permissible, and even obligatory. In fact, Harris finds it difficult to believe that others may question a complete acceptance of GE. He states, "whatever people say, no one, I believe, actually thinks that there is anything in principle wrong with the enhancement of human beings."²⁸

Harris begins his support of GE by claiming

that most individuals have already been enhanced in one way or another. For example, with the constant intake of information throughout the day, the brain is constantly changing. New connections form in the brain and lead to physical changes within its structure, almost certainly enhancing one's cognitive functioning. Even without direct exposure, individuals benefit from enhancing technologies every day such as through medical immunizations. If one has been immunized, he or she has been enhanced to reduce illness in the population. If one has not been immunized, he or she has benefited from herd immunity created by the enhancement of others.²⁹ Harris's point here is that enhancement is already common throughout society and nothing to be feared. He states, "enhancements are so obviously good for us that it is odd that the idea of enhancement has caused, and still occasions, so much suspicion, [and] fear."³⁰

By equating the natural development of the brain to the changes from intentional genetic alteration, Harris attempts to convey that GE is not the complex enigma that some assume it to be, but is rather a simple tool that should be utilized by everyone. However, Harris fails to address the issue of distributive justice when advocating for the widespread use of GE.³¹ In order for GE to become as common as the modern-day immunization, Harris must be able to ensure that access to GE is evenly dispersed among society in a way that is fair and just to all. Many genetic technologies are expensive and consequently not readily available to everyone. Only the wealthy would be able to afford such expensive technologies to the exclusion of others. This would further divide the classes of society by benefitting only the elite and harming the lower class.

Harris also supports GE by attempting to diminish the potential risks and consequences of its use. He states that opponents of GE insist "on rigorous risk assessment and on only proceeding, if in all the circumstances of the case, the risks are acceptable."³² However, according to Harris, poor outcomes are not restricted to new medical technologies such as GE but are a common feature of all human decision-making.³³ Risk is a potential with any decision, "whether it be sex, drugs, or rock-n-roll, eating fatty foods, road transport, or vaccination and gene therapy."³⁴ Inasmuch as the risks of GE

are unforeseeable they cannot be guarded against, just as with any other possible but unforeseeable consequence. Here, Harris is stating that individuals make “risky” decisions without qualms every day. Therefore, the risks associated with GE should not be prohibitive of its use.

Harris yet again attempts to discredit the angst regarding unforeseen consequences of GE by comparing the decision to eat fatty foods with that of permanent genetic alteration. While both actions may have poor outcomes, the ramification of GE are far greater than that of a simple food choice. It is imprudent to diminish the complexities of GE to such a simple statement. As previously discussed, germline GE affects not just the person who is making the decision but also the progeny of that person for generations. Any issues from germline genetic alterations could be passed down to those children. By comparing a decision that is potentially harmful to one person with a decision that is potentially harmful to many, Harris disregards key information that is essential to a full ethical analysis of GE.

Harris also addresses the opposing view that GE is unnatural, claiming that the “unnatural” is equal, or sometimes even better than the natural.³⁵ Millions of individuals die prematurely from illness and disease, natural aspects of life.³⁶ According to Harris, natural substances or natural therapies are only better than unnatural ones if the evidence supports such a conclusion. Accordingly, the option of GE should not be dismissed merely because it is deemed unnatural. He argues that individuals who fear the risks of GE fail to consider examples such as natural reproduction. Two-thirds of human embryos fail to develop successfully, and approximately 8 million children (6 percent of births worldwide) are born with a serious defect in their genetic composition.³⁷ Only if the natural can be proven to be safer, less ethically ambiguous, and more beneficial than the unnatural can it be considered a better option. However, in Harris’s opinion, this cannot be proven, and therefore the natural does not trump the unnatural.³⁸

Here, Harris fails to focus on the true issue at hand: the extent to which natural and unnatural methods should be used. There are beneficial treatments in both the natural and unnatural realms. Yet, the focus should not be on natural vs. the unnatural but

rather on what is morally acceptable within each realm. For example, administering a pill to a patient to control hypertension is vastly different than permanently altering his or her DNA through GE. Both fall within the realm of unnatural technologies, yet separate examinations of the diverse ethical implications of each treatment reveal that they cannot and should not be evaluated on the same scale.

Brent Waters

Brent Waters stands in stark opposition to the previously mentioned approaches to GE. Waters begins with a strong Christian foundation when discussing GE. In his article “Christian Ethics and Human Germ Line Genetic Modification,” Waters analyzes two theological themes that he believes to be essential in developing a clear theological interpretive lens for assessing the ethics of GE: the Incarnation and the Resurrection.³⁹

Waters argues that the act of Christ’s Incarnation—God becoming flesh and dwelling among humans—affirms that the human body is of high importance. Jesus overcame eternal death by rising bodily from the grave, which, according to Waters, emphasizes that Christ’s sacrifice on the cross should not be viewed as merely a means to rid one’s mortal body from the immortal soul but rather as a reassertion of the human body’s goodness and unity with the soul.⁴⁰ Waters also notes that the Incarnation does not necessarily eliminate all human suffering and mortality.⁴¹ The hypostatic union of Christ’s divine Person with an uncorrupted human body proves that although Christ was still deity, he was also fully man in order to reinforce the significance of mankind. An example of this reinforcement was Jesus’ healing ministry of the sick and debilitated on earth. The goal of Jesus’ healing ministry was not to perfect the temporal body, but rather to restore the sick and subsequently draw them towards the truth of the Gospel. In his article “The Future of the Human Species,” Waters states that when it comes down to it “the life and lives of God’s creatures, however vulnerable, fragile, and imperfect they might be, are nonetheless good precisely because they have been created and blessed by God.”⁴²

Next, Waters discusses the Resurrection, a theme that offers the hope humans so desperately need. Waters states that “the

resurrection should be understood as the centerpiece of the singular but tripartite culmination of the Incarnation.⁴³ Jesus’ resurrection from the dead displays God’s vindication of Jesus’ ministry and life as fully human yet fully deity. The book of 1 Timothy states “beyond all question, the mystery from which true godliness springs is great: He appeared in the flesh, was vindicated by the Spirit, was seen by angels, was preached among the nations, was believed on in the world, was taken up in glory” (1 Tim 3:16, NIV). Waters believes that this vindication extends to all forms of God’s creation and produces a “created order” of things.⁴⁴ This created order shows that human lives should be focused on certain moral structures and relationships inherent to creation. These moral structures and relationships such as marriage or children provide life with a richness that supersedes the “bare minimum of natural necessity.”⁴⁵ According to Waters, in the end, it is these moral structures and creaturely finitude that are affirmed through the Incarnation and resurrection of Jesus Christ and that proponents of GE wish to eliminate.

If Christ was not raised, and if his story ended on the cross, human suffering would be an unanswerable and unsolvable quandary, offering no hope for man’s body or soul. The Resurrection offers a correct perspective for GE, and even more broadly, for medicine in general, when addressing human disease and suffering. Advancements in technology are gifts and should be utilized to improve human quality of life and alleviate suffering. However, when perfection or immortality are made to be one’s ultimate goal in life through technologies such as GE, the creature is served and worshiped rather than the Creator (Rom 1:25).

Throughout his works, Waters also addresses the proper way in which Christians must view the freedom of humanity to employ these technologies.⁴⁶ As Christians, yet still sinful creatures, we must acknowledge that our choices will always be limited and never perfected. We subsequently acknowledge that our efforts to perfect humanity through technologies such as GE will never reach the bodily perfection that will one day be attained through Christ. Waters argues that in fact, Christian freedom is not just a gift that allows humans to make decisions apart from others, but it is “a freedom that binds

us to others as dictated by the given finite and embodied necessities that all human creatures share.⁴⁷ By continually choosing ethically ambiguous technologies that permanently modify the human being, humanity is willfully breaking the bond between the ill and the healthy. Therefore, according to Waters, to truly live out the freedom given by Christ, a Christian must refuse to participate in technologies such as GE.

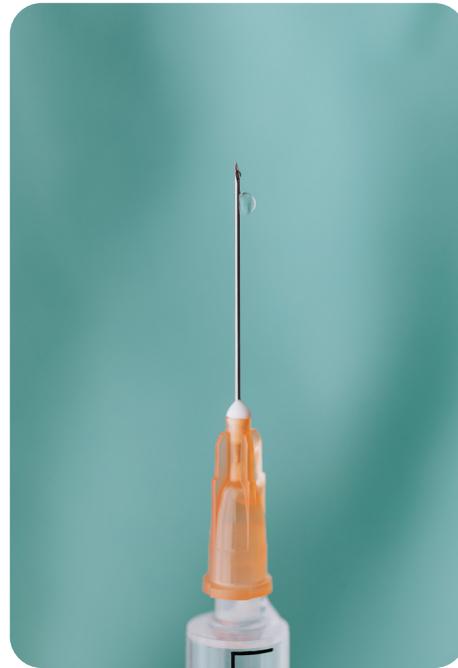
Christian Assessment

Genetic engineering and associated technologies have proven advantageous in diminishing the effects of sin brought into the world.⁴⁸ The ability to craft the intricate technologies of genetic engineering is only possible through the knowledge and wisdom given to man by God. While many Christians argue that these technologies are inherently immoral, others believe it is man's responsibility to employ these technologies in order to decrease disease and illness. What exactly is needed to establish a balanced, Christian ethic of GE? In his chapter "Agape and Ethics," Edmund Pellegrino states that "ethics as a reasoned discipline becomes insufficient to express the whole of the moral life without the Gospel [that] enables individuals to 'make moral choices.'"⁴⁹ By establishing man's God-given purpose on earth, the biblical narratives of Creation, Fall, and Redemption allow individuals to make strong, ethical choices regarding genetic engineering and more specifically GE. In his book *Foundations of Christian Bioethics*, Tristram Engelhardt highlights the need for these narratives when he states, "the Church . . . gives an account of the relation of man and woman which reaches from Eden and the Fall through redemption to the kingdom of heaven . . . a narrative into which all can find ultimate meaning."⁵⁰

The Creation narrative begins in Genesis and states that "in the beginning, God created the heavens and the earth" (Gen 1:1, ESV). During this masterful creation process, God created light and darkness, evening and morning, land and water, heaven and earth, and all living creatures, all of which he deemed good. Although God marveled at his creation thus far, the pinnacle of creation was God's formation of humanity in the *imago Dei*, or after his own image (Gen 1:27). This likeness endowed humans with a unique purpose: to cultivate and keep the earth. Christopher J. Wright claims "the

Bible states two fundamental things about us . . . (1) God made us in His image . . . and (2) God intended us to exercise dominion within creation."⁵¹

God's designated purpose for humanity is twofold. First, mankind was given the responsibility to have dominion over the earth (Gen 1:26–27). This rule does not imply a tyrannical abuse of God's creation but implies a dominion of physical care that stems from a love and respect of all living creatures. Secondly, mankind was given the task to honor and glorify God in all aspects of life and to enjoy Him forever.⁵² This enjoyment implies a constant communion and relationship with God that glorifies Him. Paul's first letter to the Corinthians states, "so, whether you eat or drink, or whatever



you do, do all to the glory of God" (1 Cor 10:31, ESV) The book of Colossians also magnifies the gift of salvation through Jesus' death on the cross and man's subsequent need to glorify God "in your body" for that wonderful gift (1 Cor 6:20, ESV).

In consideration of GE and the *imago Dei*, it is clear that humanity is not merely *tabula rasa*, waiting to be defined by its genome. Those who fully embrace GE, such as Savulescu and Harris, assume an evolutionary perspective of humanity known as reductionism. Reductionism explains complex life-science processes and phenomena in terms of the laws of physics and chemistry.⁵³ Application of reductionism attempts

to describe entire systems in terms of their individual, constituent parts and their interactions. From this viewpoint, human identity is merely a product of biology and can essentially be reinvented through human efforts. Through GE, humans can be analyzed in light of their component parts and subsequently pieced back together with modifications to produce a new and enhanced being. By reducing the human being to mere chemical compounds and stands of DNA, reductionism strips humanity of any inherent value. From the Creation narrative, it is clear that man's inherent identity is not linked to his genetic or physiological characteristics but rather is found wholly in Christ (Gen 2:7). In his book *Dignity and Destiny*, Kilner argues "that image [of God] is the standard of what humanity should be, toward which people are being transformed."⁵⁴ Unfortunately, GE directs mankind towards a transformation of supposed perfection, not towards a more fulfilled reflection of God's image.

The intentions and goals of GE are not synchronous with the God-given purpose of man. The use of germline GE makes this readily apparent. According to Campbell and Walker, most GE, especially that of the germline, is for the purpose of human enhancement such as the optimization of attributes or capabilities. While others may argue that enhancement could advance the individual's ability to fulfill the creation mandate, it must not be forgotten that God designed mankind with a predestined purpose and with the ability to carry out that purpose for his glory. Some may argue that GE could enable humans to better glorify God by heightening man's capability. Although man's capabilities might be heightened, it is an unfair assumption to claim that God created man as less than able to accomplish his intended purpose. Not only that, but mankind is directly assisted by God in accomplishing this purpose. The book of Philippians confirms that "it is God who works in you to will and to act in order to fulfill his good purpose" (Phil 2:13, NIV).

The Fall displays Adam and Eve's blatant sin of disobedience within the Garden. Adam and Eve's choice to sin set a new precedent: a life of immense suffering and pain as a consequence of their disobedience. Denise Alexander notes that "the doctrine of the Fall reminds us how far the world is from

what God intended. The entry of sin into the world has ensured that human earth-keeping will never be fully as God intended, at least not in this present evil age.”⁵⁵ Three blatant effects of the Fall are contained within Scripture. First, Adam and Eve were separated from direct communion with God (Gen 3:8–10). In the same way, so is man in his sin and depravity separated from God. This separation inhibits man’s ability to have God-like wisdom and to emulate his character in decision-making. The second effect of the Fall was death. The book of Romans declares that “the wages of sin is death” (Rom 6:23a, ESV). When Adam and Eve chose to create a gap between God and man through sin, severe consequences entered into the relationship such as disease, famine, murder, abuse, pain, and death. Michael Bird asserts that “sin (or evil) is obviously bad for humanity. It is dreadful for our well-being . . . sin deceives, entices, and enslaves. Sin is positively fatal for our relationship with God. Indeed, sin is our ‘enemy.’”⁵⁶ Through the entrance of sin, the perfection of man within the garden was forever marred, leaving humanity constantly striving after that lost perfection. Practically speaking, even with the most advanced GE technology, scientists may be able to mitigate common diseases, illnesses, or famine, but eradication of sin’s consequences is impossible.

The Fall reminds us that there is no human solution to the effects of sin within this

world. Savulescu and Harris hold on to the false hope that with the sanction of new technologies, humanity will eventually reach a form of perfection. However, is it not logical to assume that once relevant issues have been resolved, new issues will subsequently arise? Has science not assisted us in eradicating the paralyzing effects of polio, yet individuals today still face other daunting neurological diseases such as multiple sclerosis (MS) and amyotrophic lateral sclerosis (ALS)? This does not mean that all hope should be lost. Humans are still called to be stewards of God’s creation, knowing that there is only one source for the total eradication of disease and illness in this world: the Gospel of Jesus Christ. The second book of Timothy reiterates this fact and reads “Christ Jesus, who has destroyed death and has brought life and immortality to light through the Gospel” (2 Tim 1:10, NIV). As humanity attempts to heal and comfort the sick, suffering, and dying, Christians must be careful to fulfill the God-given Creation Mandate while avoiding the futile attempt to eliminate sin entirely. In response to the seemingly hopeless irreversibility of man’s sin, Wright proclaims “if there is good news for such dire realities, [it] is that the Bible gives us a gospel that addresses every dimension of the problem that sin has created. God’s mission is the final destruction of all that is evil from his whole creation.”⁵⁷ The gospel gives the entire world a solution

to the consequences of sin: the resurrection of Jesus Christ.

The narrative of Redemption is humanity’s greatest hope. The theme of God’s saving redemption is abundant throughout the Bible. In the Greek text, *redeemed* is “lytrōsis” and has a literal meaning of “a ransoming, deliverance,” or “a rescue.” The promise of redemption offers a paramount application towards GE. The promise of redemption makes clear that God is the only form of deliverance from the hardships and struggles of this life. Those who advocate for GE rely on the wisdom of man to better the human condition. In this way, man is the ultimate savior of himself. However, the only true source of man’s redemption is found within the covenantal relationship between the three distinct yet unified Persons of the Trinity. Jesus’ death on the cross was an offer of redemption for the most heinous of sinners. Applying Jesus’ redemption of mankind to the topic at hand, no matter the technology in question, whether simple restorative medicine or complex processes involved in GE, one should consistently remember that the human body is not to be the focus of earthly life. The marvelous truth of man as God’s image-bearer must remain at the forefront of both man’s spiritual and scientific mind, looking forward to that blessed hope when the body will finally be perfected in the New Jerusalem.

1. Isaac Asimov, *The Beginning and The End* (New York: Pocket Books, 1978), 182.
2. Zoltan Istvan, “Becoming Transhuman: The Complicated Future of Robot and Advanced Sapient Rights,” *Cato Unbound: A Journal of Debate*, April 16, 2018, <https://www.cato-unbound.org/2018/04/13/zoltan-istvan/becoming-transhuman-complicated-future-robot-advanced-sapient-rights>.
3. National Research Council (US) Committee on Identifying and Assessing Unintended Effects of Genetically Engineered Foods on Human Health, “Methods and Mechanisms for Genetic Manipulation of Plants, Animals, and Microorganisms,” in *Safety of Genetically Engineered Foods: Approaches to Assessing Unintended Health Effects*, Institute of Medicine and National Research Council (Washington, D.C.: The National Academies Press, 2004), 1.
4. Christopher Bechtel and Calum MacKellar, *The Ethics of the New Eugenics* (New York: Berghahn Books, 2014).
5. Center for Health Ethics, “Gene Therapy and Genetic Engineering,” University of Missouri School of Medicine, accessed January 11, 2022, <https://medicine.missouri.edu/centers-institutes-labs/health-ethics/faq/gene-therapy>.
6. Center for Health Ethics, “Gene Therapy and Genetic Engineering.”
7. Nigel M. de S. Cameron, *The New Medicine: Life and Death after Hippocrates* (London: The Bioethics Press, 2001), 129.
8. Julian Savulescu and William Isdale, “Speaking With: Julian Savulescu on the Ethics of Genetic Modification in Humans,” *The Conversation*, July 16, 2017, <https://bioethics.georgetown.edu/2017/07/speaking-with-julian-savulescu-on-the-ethics-of-genetic-modification-in-humans/>.
9. Julian Savulescu, Anders Sandberg, and Guy Kahane, “Well-Being and Enhancement,” in *Enhancing Human Capacities*, ed. Julian Savulescu, Ruud ter Meulen, and Guy Kahane (Malden, MA: Wiley-Blackwell, 2011), 3–18.
10. David B Resnik and Daniel B Vorhaus, “Genetic Modification and Genetic Determinism,” *Philosophy, Ethics, and Humanities in Medicine* 1, no. 1 (2006): 1–11, <https://doi.org/10.1186/1747-5341-1-9>.
11. Savulescu, Sandberg, and Kahane, “Well-Being and Enhancement.”
12. Savulescu, Sandberg, and Kahane, “Well-Being and Enhancement.”
13. Julian Savulescu et al., “The Moral Imperative to Continue Gene Editing Research on Human Embryos,” *Protein & Cell* 6, no. 7 (2015): 476, <https://dx.doi.org/10.1007%2Fs13238-015-0184-y>.
14. Savulescu et al., “The Moral Imperative to Continue Gene Editing Research on Human Embryos.”
15. G. Owen Schaefer, Julian Savulescu, and Guy Kahane, “Autonomy and Enhancement,” *Neuroethics* 7, no. 2 (2013): 123–36, <https://doi.org/10.1007/s12152-013-9189-5>.
16. Schaefer, Savulescu, and Kahane, “Autonomy and Enhancement,” 128–30.
17. Schaefer, Savulescu, and Kahane, “Autonomy and Enhancement,” 123.
18. Schaefer, Savulescu, and Kahane, “Autonomy and Enhancement,” 126.
19. Schaefer, Savulescu, and Kahane, “Autonomy and Enhancement,” 127.
20. Julian Savulescu, “Procreative Beneficence: Why We Should Select the Best Children,” *Bioethics* 15, no 5–6 (2001): 413–26, <https://doi.org/10.1111/1467-8519.00251>.
21. Schaefer, Savulescu, and Kahane, “Autonomy and Enhancement,” 133.
22. Dena S. Davis, “Genetic Dilemmas and the Child’s Right to an Open Future,” *The Hastings Center Report* 27, no. 2 (1997): 561, <https://doi.org/10.2307/3527620>.
23. Jürgen Habermas, *The Future of Human Nature* (Cambridge, UK: Polity, 2016), 54.
24. Habermas, *The Future of Human Nature*.
25. Scott B. Rae and Paul Cox, *Bioethics: A Christian Approach in a Pluralistic Age* (Grand Rapids, MI: Eerdmans, 1999), 199.
26. Rae and Cox, *Bioethics*, 199.
27. John Harris, *Enhancing Evolution: The Ethical Case for Making Better People* (Princeton, NJ: Princeton University Press, 2010), 9.
28. Harris, *Enhancing Evolution*, 8.

29. Harris, *Enhancing Evolution*, 8.
30. Harris, *Enhancing Evolution*, 132.
31. Keith A. Bauer, "Transhumanism and Its Critics: Five Arguments against a Posthuman Future," in *Ethical Impact of Technological Advancements and Applications in Society*, ed. Rocci Luppigini (IGI Global, 2012), 237.
32. Bauer, "Transhumanism and Its Critics," 237.
33. Bauer, "Transhumanism and Its Critics," 237.
34. Bauer, "Transhumanism and Its Critics," 34.
35. John Harris, "Pro and Con: Should Gene Editing Be Performed on Human Embryos?" *National Geographic*, October 19, 2017, <https://www.nationalgeographic.com/magazine/article/human-gene-editing-pro-con-opinions>.
36. Harris, "Pro and Con."
37. Harris, "Pro and Con."
38. Harris, "Pro and Con."
39. Brent Waters, "Christian Ethics and Human Germ Line Genetic Modification," *Christian Bioethics* 18, no. 2 (2012): <https://doi.org/10.1093/cb/cbs014>.
40. Brent Waters, "Man Reconstructed: Humanity Beyond Biology," *Concordia Theological Quarterly* 77, no. 3 (2013).
41. Waters, "Man Reconstructed."
42. Brent Waters, "The Future of the Human Species," *Ethics & Medicine* 25, no. 3 (2009): 171–2.
43. Waters, "Christian Ethics and Human Germ Line Genetic Modification," 174.
44. Waters, "The Future of the Human Species", 172.
45. Waters, "The Future of the Human Species", 172.
46. Brent Waters, "Freedom in Responsibility: A Response," *Christian Bioethics* 11, no. 2 (2005): 171, <https://doi.org/10.1080/13803600500203863>.
47. Waters, "Freedom in Responsibility," 171.
48. Scott Rae and Joy Riley, "Prenatal Genetic Testing," in *Outside the Womb* (Chicago, IL: Moody Publishers, 2011).
49. Edmund D. Pellegrino, *The Philosophy of Medicine Reborn* (Notre Dame, IN: University of Notre Dame Press, 2008), 352–53.
50. H. Tristram Engelhardt, *Foundations of Christian Bioethics* (Exton, PA: Swets and Zeitlinger, 2000), 6.
51. Christopher J. Wright, "People Who Care for Creation," in *The Mission of God's People: A Biblical Theology of the Church's Mission* (Grand Rapids, MI: Zondervan, 2010), 50.
52. *The Westminster Shorter Catechism* (Philadelphia, PA: Presbyterian Publication Committee, 1854), 1
53. *Merriam-Webster.com Dictionary*, s.v. "Reductionism," accessed August 7, 2018, <https://www.merriam-webster.com/dictionary/reductionism>.
54. John F. Kilner, *Dignity and Destiny Humanity in the Image of God* (Grand Rapids, MI: Eerdmans, 2015), 62.
55. Denis R. Alexander, "Genetic Engineering: Exploring Its Role in God's World," *Cambridge Papers* 6, no. 2 (1997): 2, <https://www.jubilee-centre.org/cambridge-papers/genetic-engineering-exploring-its-role-in-gods-world-by-denis-r-alexander>.
56. Michael F. Bird, "Sons and Daughters of the King," in *Evangelical Theology: A Biblical and Systematic Introduction* (Grand Rapids, MI: Zondervan, 2013), 671.
57. Christopher J. Wright, *The Mission of God's People: A Biblical Theology of the Church's Mission* (Grand Rapids, MI: Zondervan, 2010), 41.

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