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Kyle J. Hooper

Cedarville University, [kjhooper@cedarville.edu](mailto:kjhooper@cedarville.edu)

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# The Quandary of Cloning

*Kyle Hooper*

*Kyle Hooper is a freshman Biology major at Cedarville University who hopes to one day attend medical school. His interests include both science and science fiction.*

From Star Wars to Star Trek and beyond, the concept of cloning, specifically of humans, has gripped the interest of popular culture for decades. However, the once science fiction practice became eerily real when, in 1997, the first successfully cloned mammal, Dolly the sheep, was introduced to the world by the Roslin Institute in Edinburgh (Staicu 149). Since this feat of genetic engineering, arguments have arisen globally amongst both scholars and the populace alike, concerning whether or not the science of human cloning should be pursued. This argument has generally produced two sides, with one believing that not only a plethora of ethical and religious issues, but also enough scientific and legal dilemmas exist to support the notion that human cloning should never be practiced. On the other hand, many believe that human cloning has far too many potential benefits to be ignored, and that many of the ethical arguments presented against the practice are ungrounded. This essay aims to present a basic understanding of the science of cloning, and also to display arguments and counter-arguments from each side of the human cloning debate.

Before grappling with the various disagreements and nuances surrounding human cloning, it is best to understand cloning in general as well as its place in modern society.

In simple terms, cloning is accomplished through what is known as somatic cell nuclear transfer, or SCNT. This is a method in which the nucleus is removed from an ovum, or egg cell, and is then replaced by the nucleus (and, therefore, the DNA) of a somatic cell, or any cell from an organism that has a complete, genetic makeup. Under certain conditions, usually by means of shock or chemical therapy, the egg cell will then act as fertilized and engage in cellular division,

eventually producing a fetus (Islam et al. 258; Mcgee). This is the process that was used to create Dolly, an exact genetic copy of her somatic cell donor, and scientists believe that a similar process could be used to create human clones. Additionally, in the nearly two decades since Dolly's birth, this cloning method has been used countless times to produce a number of mammals. The extent to which such practices take place today is considerable.

For example, South Korean Dr. Hwang opened Sooam, a foundation for research in biotechnology in 2006. Since this opening, his practice has cloned over 400 dogs, an astounding daily 300 embryos of cow and pigs alike, and continues research into cloning coyotes and endangered African wild dogs. The purpose for the domesticated dog cloning, the first of which Dr. Hwang cloned in 2005, is largely for wealthy American customers and helps to fund other projects. However, the cloning of cows and pigs is part of grander research into development of protein-rich cow milk and potential for human-compatible and transferrable pig organs (Cyranoski 468-470). Through continued research and experimentation, mammal cloning is not only now possible, but occurring in abundance for both pleasure and use in the beneficence of medical science.

Although animal cloning for medical research is now evidently commonplace, the concept of human cloning presents its own set of potential medical benefits. One of the most astounding examples of medical progress through the cloning of humans is the possible eradication of infertility. While female infertility has, in modern times, its own set of solutions involving in vitro fertilization as well as the use of surrogate mothers, the major contribution that cloning would offer is the curing of male infertility, or even removing the necessity of a male from the process completely, if desired. This is because a male or female somatic cell nucleus could be used in the cloning process, giving a hopeful mother the ability to carry, birth, and raise her own clone, the clone of a donor, or the clone of her husband (Islam et al. 258-259). Thus, both male and female infertility would become nonexistent.

Additionally, the use of human cloning could potentially be used in the curing of certain genetic diseases and to create an ample number of tissue and organs available for donation. For example, if a couple

wants to have a child, but the genetics of one partner are predisposed to diseases such as Down's Syndrome, Tay-Sach's disease or others, the couple may decide to undergo cloning fertilization using the DNA of the parent that is not predisposed towards such conditions. Alternatively, if a person requires transplantation of a tissue or organ as a result of a disease that is unrelated to genetics, and is unable to acquire the necessary biological material elsewhere, cloning could be a tool for their survival. For instance, a cloned embryo of this person could be produced that the desired tissue may then be removed from in order to save the patient's life. Many scientists believe that, in addition to such aforementioned benefits, a large number of, as of yet, unimagined applications of the science of human cloning exist (Islam et al. 259).

While a number of potential benefits from human cloning exist, many argue that such cloning should not be practiced based on several grounds, including many scientific and relating moral issues that arise. The majority of scientific moral arguments against human cloning arise from the disputes surrounding the manipulation of human genes and the unacceptable results that it could have upon the human species. For example, many fear that cloning experimentation could result in the human gene pool having irreversible alterations. Such alternations could prove severely negative, even resulting in much less genetic diversity, greatly affecting each generation to come. Such a mistake is viewed as morally unacceptable. Also, it is argued that human cloning could lead to eugenics and commodification experimentation. Such experiments would theoretically manipulate genetics to create people for specific purposes or "improvements" determined by man instead of the natural order. Additionally, arguments arise that combat the notion that cloning could cure infertility, stating that such explanations simply redefine fertility. An article from The Council for Responsible Genetics states that, "Technically, cloning is a replica of that which already exists. It is not a 'cure' for anything" (Kolehmainen). Thus, several scientific rationales exist that combat the idea that human cloning should be pursued.

Disputes against cloning also exist in the legal realm of society. Many of these concerns largely revolve around the concept that clones may never experience equal rights to other humans. A major fear is that, if cloning would become common enough in the

general public, clones could be created in societies that either would have no laws concerning cloned individuals or even laws that outlaw cloning entirely. Laurentiu Staicu from the University of Bucharest writes that these human clones could easily be considered “illegal beings” (154). He goes on to quote Kerry Lynn Macintosh in stating the possibility that “... these individuals will endure a society that has attempted through its democratic institutions to prevent its very existence” (Staicu 154). Thus, opponents claim that, as a result of such potential legal disasters, human cloning should be avoided outright. It is important to understand, however, that such legal complications are hypothetical, and Staicu also makes a point to state that laws could always be adjusted and, “...that it is nonetheless highly unlikely that society will consider potential clones as sub-human creatures, whose existence should be prohibited by law” (154-155). Thus, while legal concerns surrounding human cloning and their status in society exist, such concerns are hypothetical and viewed by others as unrealistic.

Many arguments also arise against human cloning as a result of the fact that several religions generally view the act as unacceptable. For example, in Christian belief, God is the Creator “...Whose will is the ultimate source of natural law” (Staicu 156). For this reason, human meddling in the act of creation and established natural principles is viewed as an abomination and a temptation to manipulate that would be too great for humanity to handle (Staicu 156). Additionally, while genetic manipulation is not seen as wrong in the religion of Islam, cloning of human beings is viewed as prohibited. This is because it is believed that, outside of natural human reproduction and growth, a fetus is unable to obtain a soul, leaving the cloned human without any spiritual aspect and, therefore, “...the life of the cloned product will be of little or no quality” (Islam et al. 260). As a result of such shared religious objections, many believe that human cloning should not be pursued. In addition to religious issues, there exists a myriad of ethical concerns surrounding the cloning of humans. It is the view of many that human cloning should never be pursued because the potential embryo fatalities and genetic abominations produced in the process of perfecting the practice are too great an ethical concern to ever even attempt human cloning. It is often cited that Dolly the sheep was only successfully produced after 276 failures, and that such a

large number, or higher, of mistakes in human experimentation are simply morally unacceptable (Kolehmainen). However, this viewpoint is generally combatted by scientists who claim that safety and confidence in the success of human cloning can be achieved through continued animal testing and that, one day, successful human cloning is inevitable (Staicu 153). While many believe that potential atrocities committed in testing of human cloning should prevent its study, others believe that safe cloning could eventually be achieved without loss of human life.

Several other concerns of the ethics of human cloning exist, namely surrounding the psychological implications of the science. Such psychological concerns center around human identity and a clone's relationship with a parent that, genetically speaking, would be much like the clone's identical twin, just delayed by time. It is the assertion of some that clones may not be able to create their own identity or psychological independence from their parent (McGee). However, psychological expert Nestor Morales maintains that, "Identity is also the result of a continuous enriching process in which our entire personality acquires those individual characteristics that differentiate us from others" (24). Contending that the possibility of clones having identical personalities to their parent isn't accepted by modern psychology, Morales continues to emphasize the importance of experience over genetics in the development of identity and that, while genetics may be copied, experiences could never be wholly copied to produce an exact replica of identity (25). This statement is similar to Staicu's assertion that there is confusion amongst the public that a clone is a "copy" of a person rather than a "genetic copy" of a person, leading to misconceptions regarding personality and identity (150). Parties in opposition to human cloning continue to proclaim concerns over psychological ethics, while those who support human cloning continue to demean and defend against such arguments.

The science of human cloning continues to be a heated debate in modern society ever since its plausibility became evident by the production of Dolly. Today, the two sides remain staunch and committed, with the pro-cloning party asserting that human cloning's potential medical benefits make its practice an imminent fact, while others purport that a myriad of issues in ethics, religion, law, and science all support the position that human genetics should never be artificially cloned.

## Works Cited

When Dolly the sheep was introduced to the world in 1997 as the first successful result of cloning experimentation, an entire field leapt from science fiction to reality overnight. As a result, speculation about human cloning, its potential application, and its ethics soon became and remains a topic of debate amongst scholars and the populace alike. Some believe that human cloning is worth experimentation in order to confront issues like infertility and a shortage of organ donors, while others believe that the scientific, theological, and ethical ramifications of such endeavors mean that it should be left to science fiction.

Cyranoski, David. "Cloning Comeback." *Nature* 505.7484 (2014): 468-71. *Food Science Source*. Web. 11 Mar. 2015.

This article by a correspondent for Nature Publishing concerns a Korean doctor, Dr. Hwang, who has had great success in the practice of cloning animals. Cyranoski gives examples of beneficial medical research and opportunities that can be done as a result of such practices. Such an article is useful for my paper because it demonstrates the current level of animals cloned as well as the hopeful benefits of the practice.

Islam, Sharmin, et al. "Ethics of Human Cloning: A Comparative Study of Western Secular and Islamic Bioethics Perspectives." *Bangladesh Journal of Medical Science* 11.4 (2012): 258-66. *Academic Search Complete*. Web. 11 Mar. 2015.

An article composed by several professors from universities in Malaysia and Bangladesh, this source shows, in simple language, how human cloning may prospectively work as well as its potential, beneficent results to the human race. Such results include eradicating infertility and fear of genetic diseases being passed on to a child. The article then goes on to explain the struggles that Western bioethicists have with such a practice as human cloning and compare and contrast such views with an Islamic perspective. This is a useful paper because it demonstrates what human cloning may

actually look like and what it could be used to enhance. Additionally, it gives a bioethical perspective uniquely differing from that of Western medicine in approaching the ethical issue from the standpoint of the Islamic religion.

Kolehmainen, Sophia. "HUMAN CLONING: BRAVE NEW MISTAKE." Council for Responsible Genetics. Council for Responsible Genetics. Web. 11 Mar. 2015.

This website article, like several of the other sources, begins with explanations of what cloning animals "is", why it may be beneficial, and what cloning a person might mean. This article, however, is unique in its detailed attack against human cloning not only through ethics, but also scientific concerns for the human race and its future in a world where human cloning is practiced. Specifically, the article attempts to attack claims that human cloning could cure infertility. As a result, this article is useful to my paper as an example of a detailed perspective against human cloning with a variety of arguments.

Mcgee, Glenn. "Primer on Ethics and Human Cloning." Actionbioscience. American Institute of Biological Sciences, Feb. 2001. Web. 11 Mar. 2015.

Written by Glenn McGee, a Ph.D. from the University of Pennsylvania's Center for Bioethics, this website article is very useful and reliable. Although it is over a decade old, it doesn't deal with the science of cloning, but with a variety of serious ethical and psychological concerns surrounding the subject that are unlikely to change over time. Thus, it is very useful to my essay in that it presents an educated perspective on several ethical issues of human cloning.

Morales, Nestor. "Psychological and Ideological Aspects of Human Cloning: A Transition to a Transhumanist Psychology." *Journal of Evolution and Technology* 20.2 (2009): 19-42.



Academic Search Complete. Web. 11 Mar. 2015.

This article by a psychologist and expert of social sciences examines both sides of the ethical argument of human cloning, largely relating to human psychology and identity. The article gives a unique perspective in that it generally argues that most attacks against cloning that relate to ethics, specifically regarding the psychology of a clone, are ungrounded and are contradicted by a modern understanding of psychology. Such an article is useful to my paper as a rebuttal and alternate viewpoint against arguments claiming the unethical nature of human cloning.

Staicu, Laurentiu. "Human Cloning and the Myth of Disenchantment." *Journal for the Study of Religions and Ideologies* 11.31 (2012): 148-69. Humanities International Complete. 11 Mar. 2015.

Staicu, from the Faculty of Philosophy at the University of Bucharest, presents a very unique, philosophical approach to human cloning. First, he presents a detailed introduction to the concept of human cloning. Then, he goes on to write about viewpoints on cloning from various ideologies and religions. Staicu's work is very useful and helpful in its display of a variety of viewpoints, arguments, and facts concerning the science of human cloning.