

SHOULD HUMAN CLONING BE PERMITTED?

Dear Dr. Ibeh

I am pleased to inform you that I have done research on the above topic as requested.

The main objective of performing this research was to point out the advantages and disadvantages associated with human cloning and also to find out the ethical stand of the contemporary society on the issue of human cloning whether to be permitted or not?

I hope that this report will give you a clear understanding of cloning and also meet your expectations. If you have further questions or concerns you can reach me at 417-396-1416 or email me at bernzioki@yahoo.com.

Sincerely,

Bernice Nzioki.

PSU/NSF-REU/RET
2005 Summer Program

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Introduction

Cloning is not a new concept; it has been around for quite sometime. There are many occurrences that have led us to the point where we are now. A Clone is defined by the *Encyclopaedia Britannica* as "an individual organism that was grown from a single body cell of its parent and that is genetically identical to it."

People have diverse and strongly held opinions regarding the morality of cloning humans. This debate is usually couched in religious and ethical terms. Theologians and Ethicists may use different routes to arrive at the same conclusion.

Religious arguments are based largely on the traditions and scriptures unique to each faith. Different religions have different attitudes towards cloning and within each faith there is diversity of opinion.

According to religion all men have dignity because they were created in the image of God. Cloning violates this dignity in several ways. First of all, cloned humans are manufactured in the image of existing people instead of created by a "unique creative act of God."

Ethical arguments are based on more general guidelines for behavior that do not stem from any particular religion. Ethics usually vary more by culture than by religion. In general society does not disagree on what is ethically wrong, rather society disagrees on how to weigh different ethical considerations.

The cloning of human beings, many concluded, would be biologically wrong, socially misguided, and morally and ethically repugnant.

Yet some scientists began touting the enormous benefits that human cloning might bring. These include helping infertile couples who have had no luck with other infertility treatments to have children or allowing a parent bearing a gene for a debilitating disease such as Huntington's chorea to avoid passing the gene onto his or her child.

History of Cloning

Cloning is not new. Experiments with frogs and toads date back to the 1970s. And experiments involving plants and animal embryos have been performed for years. But experiments involving human beings have never been tried or thought possible, until "Dolly." Her birth shocked the scientific community and has spurred discussion about the possibility of human clones. Dr. Lee Silver, a molecular biologist at Princeton University, is optimistic that "human cloning will occur," and that "it might take five years, ten years at the outermost." Lee notes that at this time, "no ethical doctor would do human cloning" Although this view is predominant among many scientists, some argue that a safe technology could be developed in the future. This has led to discussion about whether human cloning should even be legally possible.

Literature review

"Dolly," the first fully grown mammal to be cloned

Somatic cell nuclear transfer was used is a fully grown mammal, with her DNA coming from a single cell taken from her mother egg, which is fused with the mammary cell. The fused cell then develops into an embryo, which is implanted in a "surrogate" sheep. The embryo grows into a lamb, which is genetically identical to the donor sheep.

Though has been touted as a success, this cloning procedure is not perfect. It took more than 277 attempts before "Dolly" was created as a health viable lamb.

Cloned Cows' Milk, Beef Up to Standard

Researchers Find No Significant Differences With Products of Conventionally Raised Cattle

By Rick Weiss

Washington Post Staff Writer

Tuesday, April 12, 2005; Page A03

Milk and meat from cloned cattle are almost identical in composition to the milk and meat from conventionally bred cattle, according to the first comprehensive assessment of the nutritional value of food from clones.

The new findings, by researchers in Connecticut and Japan, bolster industry assertions that food products from clones should be allowed on the market. But other experts criticized the report as incomplete and said that, in any case, social and economic factors argue against the sale of clonal food. Cloning technology allows scientists to create genetic replicas of adult animals. Although the process remains expensive and inefficient, some producers see a future in the approach because it could allow farmers to mass produce their best milk cows and their finest beef cattle without diluting those stocks with a mate's lesser genes.

The National Academy of Sciences in 2002 concluded that meat and milk from cloned cattle were unlikely to pose human health concerns, but it warned that there were few studies on which to base its conclusion. A year later, a Food and Drug Administration advisory committee leaned the same way, but several members expressed reservations and even more voiced concerns about the clones' health and welfare.

Social and ethical questions also persist, Foreman said.

"This study does not address the big issue . . . which is: 'Is this what we want to do as a society? What do we think about having a clone burger?'"

Arguments For Human Cloning

Human cloning research would enable doctors to determine the cause of spontaneous abortions, give oncologists an understanding of the rapid cell growth of cancer, allow the use of stem cells to regenerate nerve tissues, and advance work on aging, genetics, and medicines

Opposition against Human Cloning

Wilmut, the scientist credited with "Dolly," calls the cloning of humans "appalling," because it would result in a high number of miscarriages and deaths among newborns. A clone could also change family dynamics in profound and unpredictable ways.

Concern has been raised that a black market for embryos would arise. Infertile couples could buy a cloned embryo that was stolen or was to be discarded in order to have a child. Scientists are also concerned about the medical risks and uncertainty associated with human cloning. One fear is that if a baby is cloned, its chromosomes could match the age of the donor -- meaning that a "5-year old would look like a 10-year old and a 10-year would look like a 20-year old, with potential for heart disease and cancer to develop"

Ethical Issues Surrounding Cloning

Before cloning is considered permissible medicine for human infertility, society needs to resolve many questions, including:

- Is cloning unnatural self-engineering?
- Will failures, such as deformed offspring, be acceptable?
- Will cloning lead to designer babies who are denied an open future?
- Who is socially responsible for cloned humans?
- Do clones have rights and legal protection?

The society concludes that the following consequences may result from human cloning.

- Possibility of Physical Harm to the Embryo-fear that clones will have an accelerated aging process since the cell used in the cloning procedure will have been "exposed to a lifetime
- Possible Psychological Harms to the Child-A cloned child may feel that their future is constrained by the life path of their gene donor.
- Possible Degradation of the Quality of Parenting and Family Life
- Possible Objectification of Children
- Possible Social Harms-practice of somatic cell nuclear transfer cloning will encourage a form of eugenics as people arbitrarily decide which traits are desirable
- The Use of Scarce Resources-Opponents argue that it is unethical to "divert scares resources

Conclusion

Until recently, there were few ethical, social, or legal discussions about human cloning via nuclear transplantation, since the scientific consensus was that such a procedure was not biologically possible. With the appearance of Dolly, the situation has changed. But although it now seems more likely that human cloning will become feasible, we may doubt that the practice will come into widespread use.

Cloning offers remarkable insight into the power of creation that humanity has taken into its fold. One theological analysis holds that humans are co-creators with God; perhaps it is more accurate to say that humans are moving ever closer to a posture of making babies, rather than having babies. Cloning represents a remarkable test of human restraint, wisdom and institutional development, one that will in many ways identify the moral features of 21st century biotechnology.

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