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use in a



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Human Cloning Biological Aspects True human cloning involves taking a somatic cell from a person and removing its nucleus.

Then the nucleus of a fertilized egg cell is removed and placed in the somatic cell. This is impossible in humans right now because the somatic cells are specialized and there are many genes that have been switched off in them that we do not know how to turn them back on. This was done with frogs however.

The eggs were implanted with the nuclei from the intestinal lining of tadpoles. Most of these frogs died or grew into monsters. Of the ones that did grow normally they were sterile. Embryo splitting or blastomere separation is what is most commonly referred to as human cloning. Embryos in the early stages of development start to divide into cells called blastomeres. The zona pellucida (a protective covering for the egg) is punctured or removed and the blastomeres are separated from each other. Each blastomere is then covered with an artificial zona pellucida.

Then each of the blastomeres starts dividing and becomes an embryo. This was attempted by Hall and Stillman in 1993. They used embryos that contained too much genetic information and got as far as 32-cell divisions in some the embryos. At this stage the embryo can be implanted in the womb.

Another technique is nuclear transplantation. In this process unspecialized embryonic cells are used and their nuclei are removed. An embryo in the 32-cell division stage has its blastomeres separated and then the blastomere is fused with an egg cell by using an electric current or another method. A possibility for human cloning that has been proposed is that of the embryos

that were cloned and not implanted would be frozen for use in a catalog. The child that was born from a cloned embryo would have a picture taken of him/her and placed in a catalog along with a description of the child. Then prospective parents could choose the child that they want, order its embryo, and implant it into the woman's womb.

Then after nine months the couple would have their dream child. Something else that has been proposed is that a black market for embryos would arise. In this situation infertile couples could buy a cloned embryo that was stolen or was to be discarded in order to have a child. Embryo splitting could also be used to rid the world of genetic diseases. One could clone their embryo and test one of the clones for a genetic disease. If the embryo tests positive then all of the clones would be destroyed. If the embryo tests negative for diseases then one of the clones could be im..

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planted to produce a healthy child. Ethical Aspects There are many ethical questions that must be answered before cloning becomes a reality. Many of these questions are difficult to answer because all of the facts are still unknown because cloning itself is still in its early stages as a science. Is Human cloning playing God?" And god said, Let us make man in our image, after our likeness: and let them have domain over the fish of the sea, and over the fowl of the air, and over the cattle, and over all the earth, and over every creeping thing that creepeth upon the earth.

So God created man in his own image, in the image of God created he him; male and female created he them. And God blessed them, and God said unto

them, Be fruitful, and multiply, and replenish the earth, and subdue it: and have dominion over the fish of the sea, and over the fowl of the air, and over every thing that moveth upon the earth... And God saw everything that he made, and, behold, it was very good." Genesis 1: 26-28, 31 Well, a lot of that depends on perspective religions. Many believe that it is tampering with the work of God, but others believe that it is a miracle of science that will help infertile couples live the dream of having their own children.

Would you be willing to have a cloned child? Even if you or your spouse were infertile, there are still options other than cloning. Why not adopt? With cloned children, it means that there will be other children exactly like the one you have scattered throughout the world. With adoption, the