

## Cloning

Clones are organisms that are exact genetic copies. Cloning can be used for medical purposes, reviving endangered or extinct species, producing high-quality livestock, and even human reproduction. Although cloning appears to be beneficial, it also has many risks. However, there are alternatives to cloning.

### Benefits of Cloning

- Can be used to produce identical copies of a plant or animal.
- Can be used to produce identical copies of a human embryo for research.
- Can be used to produce identical copies of a human embryo for medical purposes.
- Can be used to produce identical copies of a human embryo for reproductive purposes.
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### Risks of Cloning

- High financial cost.
- High risk of failure.
- High risk of health problems.
- High risk of ethical issues.
- High risk of social issues.
- High risk of environmental issues.
- High risk of genetic issues.
- High risk of reproductive issues.
- High risk of research issues.
- High risk of medical issues.



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# Benefits of Cloning

- Solve the problem for infertile couples, or if one parent has a genetic disease.
- Parents who have lost a child could have another baby.
- Homosexual couples can have a baby.
- Humans may be cloned for organ donations, thus eliminating transplantation lists.
- Eliminate defective genes.
- Research for genetics.
- Medical breakthroughs.
- Eliminate liver failure, kidney failure, leukemia, cancer, cystic fibrosis, baldness, etc.
- Repair nervous system injuries.
- Endangered species could be saved.
- Rejuvenation: cloning brings the possibility to reverse the aging process.
- Remove the need for cosmetic surgery.
- Help to attain a greater understanding of miscarriages.
- Create repair mechanisms to treat medical tragedies.
- Create organisms with the ideal design.
- The prevention, diagnosis and treatment of diseases.
- Eliminating viral epidemics, such as, like HIV.
- Help to create modified animal organs that can be transplanted in to humans easily.
- Research funding

# Risks of Cloning

- High failure rate - About 98% of cloning attempts fail.

- Abnormal gene expression patterns

- Telomeric differences - clones age quickly and have shorter lifespans.

- Problems during later development - Clones that survive tend to be bigger at birth than natural counterparts, a syndrome called Large Offspring Syndrome. Large organs means issues with breathing and blood flow. Clones also seem to develop kidney and brain malformations and impaired immune systems.





