Introduction
“Designer babies” is a colloquial term for human embryos that have been genetically modified or selected to have (or lack) a specific trait or gene. Embryos that show these markers can be discarded rather than implanted, which allows parents to ensure that their children do not have that particular disease. The popularity of such genetic selection tactics is associated with several concerns about how these techniques will affect our society.

Screening processes test human embryos for genetic markers that indicate a particular disease. Embryos that show these markers can be discarded rather than implanted, which allows parents to ensure that their children do not have that particular disease. The popularization of such genetic selection tactics is associated with several concerns about how these techniques will affect our society.

Genetic Diagnosis and Selection
Genetic testing and modification occurs during in vitro fertilization (IVF) of embryos. During IVF, a process known as Preimplantation Genetic Diagnosis (PGD) consists of the extraction of a single cell from an eight-cell embryo and the analysis of its DNA for disease-associated genetic markers. The steps of PGD are:
1. Remove cells from 5 day-old embryos and freeze the embryos
2. Analyze the cells’ DNA to identify which embryos are free of problematic genes in a week-long process
3. Embryos free of genetic irregularities are implanted into the uterus and others are destroyed

Advantages of Designer Babies
The ability to screen embryos for particular defects provides a new source of hope for parents who are carriers of fatal genetic defects. One such defect includes Gerstmann–Sträussler–Scheinker syndrome, a neurodegenerative disease that is often fatal by age 60. Prospective parents who have the disease can stop it in its tracks by ensuring that they do not pass it on to their offspring.

Other advantages of PGD include that it allows for advanced knowledge of genetic defects. This prevents couples from making a difficult choice between terminating an affected pregnancy when the fetus is between 10 and 16 weeks old or raise a child with a genetic disease. Some professionals also propose that IVF and PGD together can prevent miscarriages, which can be both emotionally and physically taxing for prospective parents.

Ethical Considerations
While there are several benefits of being able to select a child to have a particular genetic makeup, there are also several ethical concerns raised by the manipulation of the human gene pool. The most prominent ethical concerns are:
- The reduction of gene variation within the human gene pool could increase the potential for a disastrous event to end the human race
- The high cost of genetic modification methods and procedures could lead to a super class as lower economic classes cannot afford these processes
- Healthy but “different” individuals may be selected aborted, contributing to the potential for a super class
- The use of genetic manipulation has led some parents to conceive children who will be genetic matches for ill siblings, known as “savior siblings,” for the express purpose of acting as donors for their siblings
- An error caused by genetic modification will be passed down to all offspring of the modified individual
- Discarding embryos that are deemed less fit than others is sometimes viewed as taking a human life

Literature Cited