

Designer babies: Creating the perfect child

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Bring your partner, grab a seat, pick up your baby catalog and start choosing.

Will you go for the brown hair or blond? Would you prefer tall or short? Funny or clever? Girl or boy? And do you want them to be a muscle-bound sports hero? Or a slender and intelligent book worm?



When you're done selecting, head to the counter and it's time to start creating your new child. Does this sound like a scary thought? With rapid advances in scientific knowledge of the human genome and our increasing ability to modify and change genes, this scenario of "designing" your baby could well be possible in the near future.

Techniques of genetic screening are already being used -- whereby embryos can be selected by sex and checked for certain disease-bearing genes. This can lead to either the termination of a pregnancy, or if analyzed at a pre-implantation stage when using In Vitro Fertilization (IVF), can enable the pregnancy to be created using only non-disease bearing genes.

British scientists last week developed a "genetic MoT" test, which offers a universal method of screening embryos for diseases using a new technique of karyomapping, which is more efficient than previous processes.

The test would be taken on a two-day-old IVF embryo and is yet to be validated, but it could mark a significant change; allowing doctors to screen for gene combinations that create higher risks of diabetes, heart disease or cancer.

Experts estimate the test, if licensed by the Human Fertilization and Embryology Authority, could be available for around \$3000.

In the future we may also be able to "cure" genetic diseases in embryos by replacing faulty sections of DNA with healthy DNA, in a process called germ line therapy. This has been performed on animal embryos but is currently illegal for humans.

Furthermore, the developing technologies of genetic alteration open up a whole new set of possibilities -- which could result in so-called "designer babies."

The technique -- known as inheritable genetic modification -- modifies genes in eggs, sperm or early embryos and results in the altered genes being passed on to future generations. Should parents be allowed to create their babies?

This could potentially irreversibly alter the human species. So, the obvious question arises: should we be doing this?

Some countries have made genetic screening or alteration illegal by law, and the ethical questions surrounding the uses of the technology are vast -- creating a palpable tension over the subject.