Genetic Screening and Modification of Humans

Genetic enhancement is the modification of human genes using biotechnology. This, in turn, can fundamentally change the character and traits of an individual. This concept could have very wide ramifications; enhancement can be deployed to address diseases and pathological conditions, but, perhaps more alarmingly, often seeks to create the 'optimum' human; that is to say, it focusses not on genetic issues that *need* to be solved, but on traits that *could* be enhanced.

Animal testing has shown what is already possible in regard to genetic enhancement. Live mice have been injected with genes which prompt a rapid growth of muscle mass, and such a technique could well come a feature of the way patients with degenerative diseases are treated. It is theoretically possible to insert specific genes, such as MGF-1, into humans to counteract the aging process. Scientists have also considered the possibility of gene insertion at the embryonic stage. In animal testing, this has had dangerous consequences, including lower birth rates, higher risk of failed pregnancy, and higher rates of new-born deaths. Whilst it appears to be possible to alter physical characteristics using genetic enhancement, character traits are much harder to influence. Intelligence, for example, is believed to be a polygenic trait; that is, it is influenced by multiple genes, rather than one. As such, it is difficult to isolate. In addition, it is impossible to ignore the impact of environment on character development, something which genetic enhancement cannot address. Indeed, precise genetic modification of character is still, in scientific terms, a long way off, even if it is theoretically possible. To get this point, however, more experimentation and testing is required, and some of these experiments and tests will inevitably lead to failure, with potentially disastrous human consequences.

There are essential ethical debates to consider in this field. Experimenting with genetic enhancement techniques on animals prioritises the progress of humans over the welfare of animals. Testing, or prototyping, would inevitably need to be applied to humans; the selection of these individuals could prove controversial, with issues of consent and privilege needing to be considered. Critics of genetic enhancement claim that humans should not be 'playing God'. Many questions who has the right to fundamentally change the character – physiological or psychological – of an unborn baby. There is also the 'slippery slope' argument; if genetic enhancement becomes widely used in a pathological sense, could this easily slip into the more controversial issue of 'designer babies.' The potential impact of parents being able to select the genetic makeup of their children could be huge.

Points to consider:

- Should humans be able to use animals in experiments with genetic enhancement?
- Should research into genetic enhancement of character be stopped?
- What should the purpose of genetic enhancement be?
- Should the process be regulated? How?

Useful Links:

https://www.geneticsandsociety.org/topics/human-genetic-modification

SGSMUN 2019 Disarmament The Issue of Nuclear Weapons in Foreign Sovereign States

https://www.beliefnet.com/news/is-genetic-engineering-ethical.aspx
http://www.bbc.co.uk/ethics/animals/using/biotechnology_1.shtml