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Abstract: The article discusses the implication of genetic drift in human mutations. According to the article, the DNA is constantly subjected to various chemical and radiation, which made it susceptible to the formation of numerous mutations in the embryo. In addition, it states that these processes played a very significant role in human evolution, adding that genetic differences are mostly due to genetic drifts rather than natural selection.

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8 Natural selection is the only means of evolution

Much change is due to random genetic drift rather than positive selection. It could be called the survival of the luckiest

Take a look in the mirror. The face you see is rather different from that of a Neanderthal. Why? The answer could be genetic drift. With features such as the shape of your skull, which can vary in form with little change in function, chance might play a bigger role in evolution than natural selection.

DNA is under constant attack from chemicals and radiation, and errors are made when it is copied. As a result, each human embryo contains 100 or more new mutations. Natural selection will eliminate the most harmful - those that kill the embryo, for instance. Most mutations make no difference because they occur in junk DNA, which makes up the vast majority of our genome. A few cause minor changes that are neither particularly harmful nor beneficial.

While most new neutral mutations die out, a few spread through later generations purely by chance. The odds of this happening are tiny, but the sheer number of mutations that arise make genetic drift a significant force. The smaller a population, the more powerful it is.

Population bottlenecks have the same effect. Imagine an island where most mice are plain but a few have stripes. If a volcanic eruption wipes out all the plain mice, striped mice will

repopulate the island. It's survival of the luckiest, not the fittest.

These processes have almost certainly played a big role in human evolution. Human populations were tiny until around 10,000 years ago, and genetic evidence suggests that we went through a major bottleneck around 2 million years ago.

Most of the genetic differences between humans and other apes - and between different human populations - are due to genetic drift rather than selection, but as most of these mutations are in the nine-tenths of our genome that is junk, they do not make any difference. Of those that do affect our bodies or behaviour, it is likely that at least a few have spread because of drift rather than selection.

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By Michael Le Page

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