

Q. what is genetic load and what are the factors that influence it.

The concept of genetic load was given by HJ Muller in his paper "our load of mutation".

Genetic load measures the extent to which optimum fitness, viability and other beneficial characteristics of a population gets reduced due to factor under consideration.

Types & influencing factors

- ① Mutation load caused by harmful mutations which reduces the beneficial genes and increases the non beneficial genes.
- ② Segregational load caused by segregation of homozygous alleles at the loci where heterozygous are favoured.
- ③ Incompatibility load caused by maternal-fetal incompatibility such as Rh⁺ child conception to Rh⁻ mother.

Measurement of load

Genetic load is a value between 0 and 1.

$$L = \frac{W_{opt} - V}{W_{opt}}$$

where L - genetic load

W_{opt} - optimum fitness of population

V - average fitness of population

Case study → Genetic load in Great Andamanese

The great Andamanese population

1901

625

Presently

165

- ↳ due to hereditary syphilis & infectious disease population falling
- ↳ result of inbreeding
- ↳ all men are sterile due to homozygosity

To conclude, genetic load measurement would help in tackling falling population of PVTGs which is a cause of concern.