GENOMIC HETEROZYGOSITY - LOWER RISK OF OSTEOARTHRITIS

A recent post stated “As a simple evolutionary rule, the higher an individual's heterozygosity, the better!” The post referred to a paper illustrating the relationship between HLA heterozygosity and better outcomes of HIV infection (1). In a paper which appeared in BMC Genomics, Gill et al. (2) investigated the association between osteoarthritis (OA) and genomic heterozygosity. The research involved end-stage knee and hip OA patients, as well as healthy controls from Newfoundland and Labrador, (Canada) with validation from the Arthritis Research UK Osteoarthritis Genetics (arcOGEN) consortium database. DNA analysis revealed an inverse relationship between OA and genomic heterozygosity, indicating that reduced heterozygosity is a risk factor for developing OA.

This brings to mind an article from 2019 (3), with a self-explanatory title: “Genome-wide analysis indicates association between heterozygote advantage and healthy aging in humans”.

1. https://www.science.org/doi/10.1126/science.adk0777
2. https://bmcgenomics.biomedcentral.com/articles/10.1186/s12864-024-10015-9
3. https://bmcgenomdata.biomedcentral.com/articles/10.1186/s12863-019-0758-4