

Fundamental Theorem of Natural Selection

Amount of Genetic Variance

Fitness Differentials

Rate of Change in Allele Frequencies

Population-Level Standing Fitness

$$\delta p = \frac{pq[q(w_{aa} - w_{Aa}) - p(w_{AA} - w_{Aa})]}{\bar{w}}$$

The diagram illustrates the Fundamental Theorem of Natural Selection equation. The equation is $\delta p = \frac{pq[q(w_{aa} - w_{Aa}) - p(w_{AA} - w_{Aa})]}{\bar{w}}$. Annotations include: 'Amount of Genetic Variance' pointing to the pq term; 'Fitness Differentials' pointing to the numerator's terms; 'Rate of Change in Allele Frequencies' pointing to δp ; and 'Population-Level Standing Fitness' pointing to \bar{w} .

Adaptation & Quantitative Traits

Most traits appearing to influence fitness in natural populations are quantitative.

The ability to evolve over time is determined by the presence of “large effect” genes as well as the cumulation of interactions among genes of “small” effect.