

The standard evolutionary understanding of aging and mortality explains both as unfortunate side effects of evolution, opposed by selection but impossible to eliminate, and holds that natural selection cannot directly favor shorter lifespan or programmed death for an organism. However, this theory is based on an implicit assumption of spatial averaging. When spatial distributions of populations are taken into account, a variety of self-limiting behaviors robustly evolve, maintained through long-term environmental feedback. In particular, self-limited lifespan is reliably favored in spatial systems, providing an additional mechanism contributing to senescent effects, and helping to account for classically anomalous empirical data on natural lifespans and intrinsic mortality.