Human Life Tables and Survivorship Curves

SURVIVORSHIP CURVES AND LIFE TABLES

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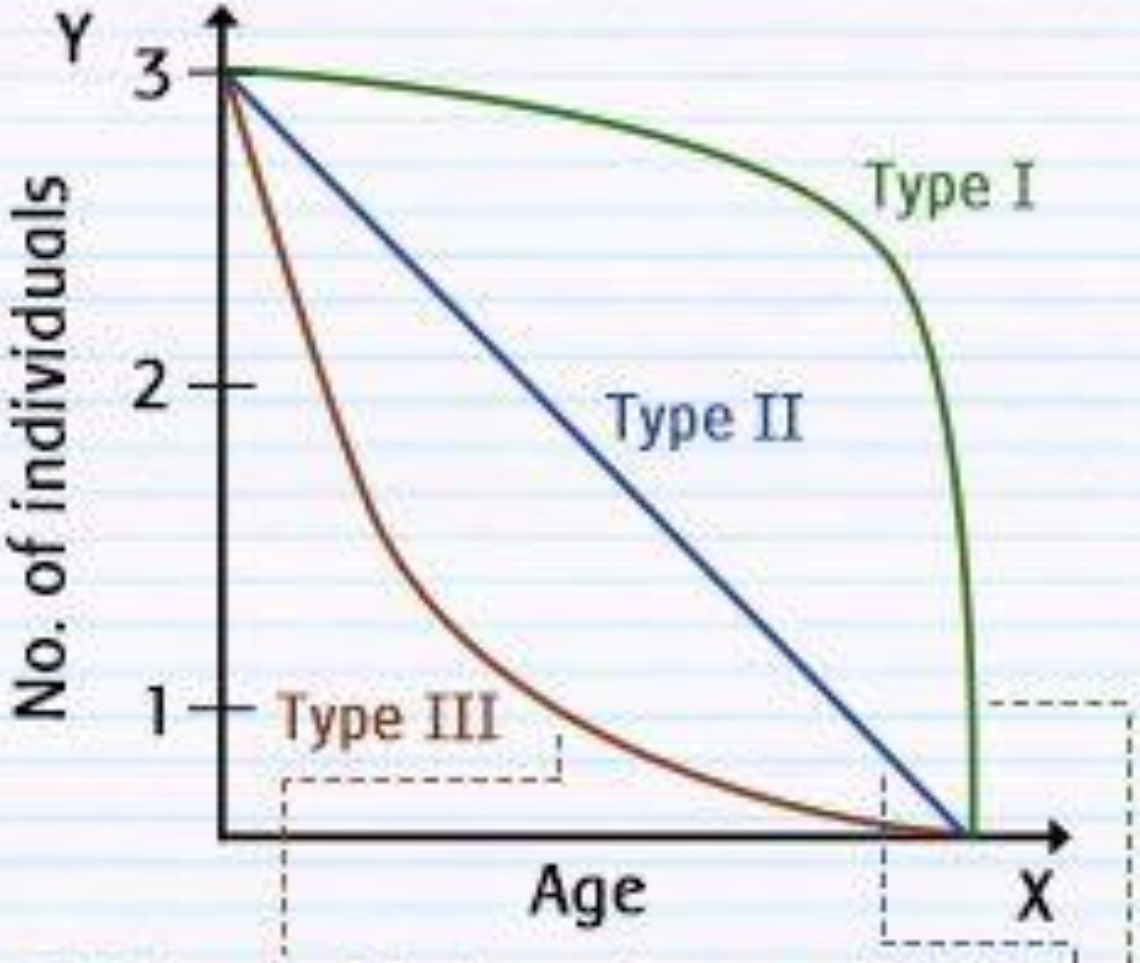
COHORT ANALYSIS

- The individuals from birth (born at approximately the same time) to the end of the life cycle, form a group known as cohort and their investigation is termed as cohort analysis.
- Cohort life table data maybe very instructive when plotted to form a survivorship curve for a particular population

SURVIVORSHIP CURVES

- When the data from column lx (survivorship) are plotted against the x (age) column, the resulting curve thus formed is called a survivorship curve
- Survivorship curves are hypothetically of three types.
- It was first introduced by Raymond Pearl in 1927.

Survivorship Curves



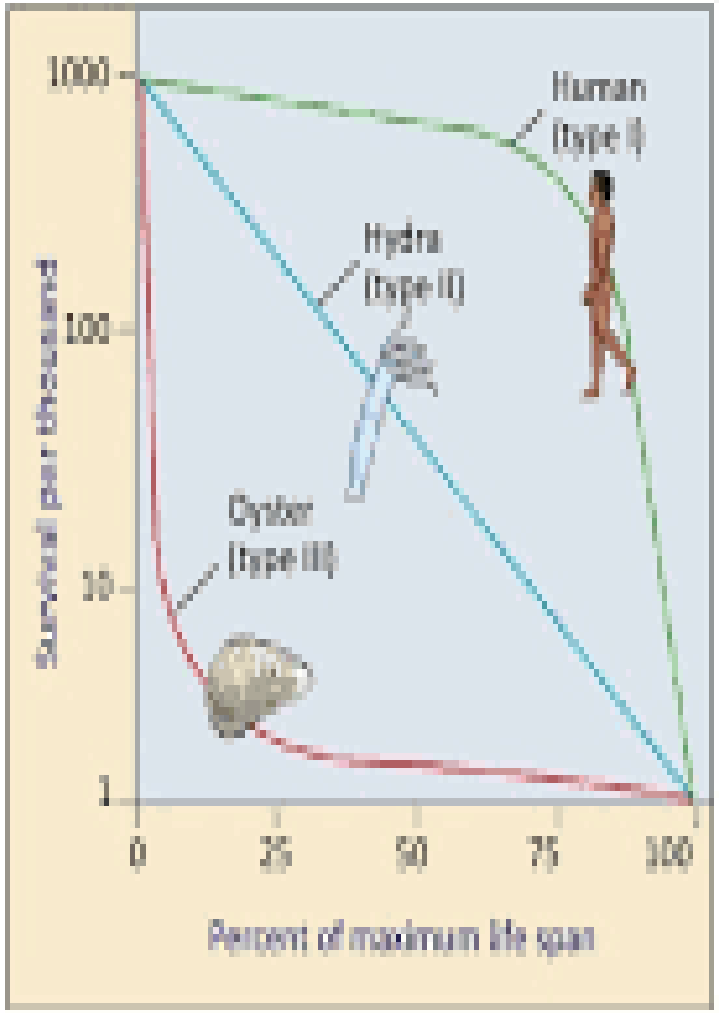
Survival is low at an early age

Survival remains constant

Survival is high at an early age

Survivorship curves

- Generalized strategies



What do these graphs tell about survival & strategy of a species?

I. High death rate in post-reproductive years

II. Constant mortality rate throughout life span

III. Very high early mortality but the few survivors then live long (stay reproductive)

Survivorship Curves

Type I survivorship curves are characterized by high survival in early and middle life, followed a rapid decline in survivorship in later life. Humans are one species that show this pattern of survivorship.

Type II curves are an intermediate between Type I and III, where roughly constant mortality rate is experienced regardless of age. Some birds follow this pattern of survival.

In Type III curves, the greatest mortality is experienced early on in life, with relatively low rates of death for those surviving this bottleneck. This type of curve is characteristic of species that produce a large number of offspring. One example of a species that follows this type of survivorship curve is the cockroach.

r- and K- strategies shown by survivorship curves

Survivorship Curves

- Late Loss: K-strategists that produce few young and care for them until they reach reproductive age thus reducing juvenile mortality
- Constant Loss: typically intermediate reproductive strategies with fairly constant mortality throughout all age classes
- Early Loss: r-strategists with many offspring, high infant mortality and high survivorship once a certain size and age