

The influence of the early-life environment on adult stress physiology and fitness in the wild.

Early-life conditions can have profound and lasting effects on physiology and behaviour throughout an individual's lifetime. For example, in captive songbirds, nutritional restriction or corticosterone treatment during early-life has been related to changes in hypothalamic-pituitary-adrenal (HPA) axis function, brain development and behavior during adulthood. While exposure to pre- or post-natal stress often carries negative connotations, eco-physiologists are making progress towards understanding how the early-life environment programs offspring physiology and behaviour to match the anticipated environment and how this phenotypic plasticity enables individuals to track fitness optima. However, how the effects of the early-life environment, specifically stress exposure, are manifested in the wild is not well understood. Using two long-term marked wild populations with high natal philopatry: Savannah sparrows (*Passerculus sandwichensis*) on Kent Island in the Bay of Fundy, New Brunswick and Red squirrels (*Tamiasciurus hudsonicus*) in Kluane, Yukon, I examine the ecological and physiological outcomes associated with early-life stress. Conducting large-scale field experiments in both of these wild systems, I describe the relationship between early-life conditions, adult stress physiology, survival and annual reproductive success.