Hormone concentrations in young mammals predict trade-offs later in life

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Early development after birth can have profound effects on survival and reproduction. Now new research suggests that concentrations of a hormone associated with growth and aging in humans can be used to predict growth, reproduction, and lifespan in a population of wild animals.

Researchers studying spotted hyenas found that juvenile concentrations of insulin-like growth factor-1 (IGF-1) predicted heavier juvenile weight, which in turn predicted greater likelihood of surviving to reproductive maturity and earlier ages at which they gave birth to their first offspring. However, juvenile IGF-1 also predicted a cost: hyenas with higher concentrations had shorter adult lifespans.

"These trade-offs have been well-documented in wild mammals, but never have juvenile IGF-1 concentrations been shown to predict them," said Nora Lewin, graduate student and lead author of the Functional Ecology study. "Our study highlights the importance of early postnatal development as a determination period in mammals, and suggests that circulating IGF-1 concentrations measured during the first year of life can be used to predict later-life traits in animals that live up to 24 years in the wild."

More information: Nora Lewin et al. Juvenile concentrations of IGF-1 predict life-history trade-offs in a wild mammal, *Functional Ecology* (2016). DOI: 10.1111/1365-2435.12808

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