

Does Leptin Provide a Metabolic Signal to the Reproductive System in Blue-tongued lizards, *Tiliqua nigrolutea*?

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Animals require adequate energy reserves to fuel successful reproduction: there must, therefore, be a physiological signal that informs the reproductive axis about the body's nutritional state. We aimed to test the hypothesis that leptin provides a metabolic signal to the reproductive system in blue-tongued lizards, a species in which energy intake is constrained by hibernation, and in which the females, but not the males, exhibit a multiennial reproductive cycle. We compared the annual cycles of plasma leptin, and corticosterone, as a second major metabolic hormone, in male and female blue-tongued lizards. In males, plasma corticosterone is high during the spring mating period, lowest during summer, and rises to a significant peak during late hibernation. In both reproductive and non-reproductive females, plasma corticosterone is minimal in spring. In pregnant females corticosterone peaks during late gestation, falling sharply around the time of birth: this pattern is not apparent in non-pregnant females. Plasma leptin concentrations vary between males and females but again, there was no significant difference between the patterns of plasma leptin in reproductive and non-reproductive females. These results suggest that other factors, such as thyroid hormones, may contribute to determining an individual female's decision to breed in any one year.