

Morphological and physiological indicators of sexual maturity in a viviparous skink, *Tiliqua nigrolutea*

Introduction

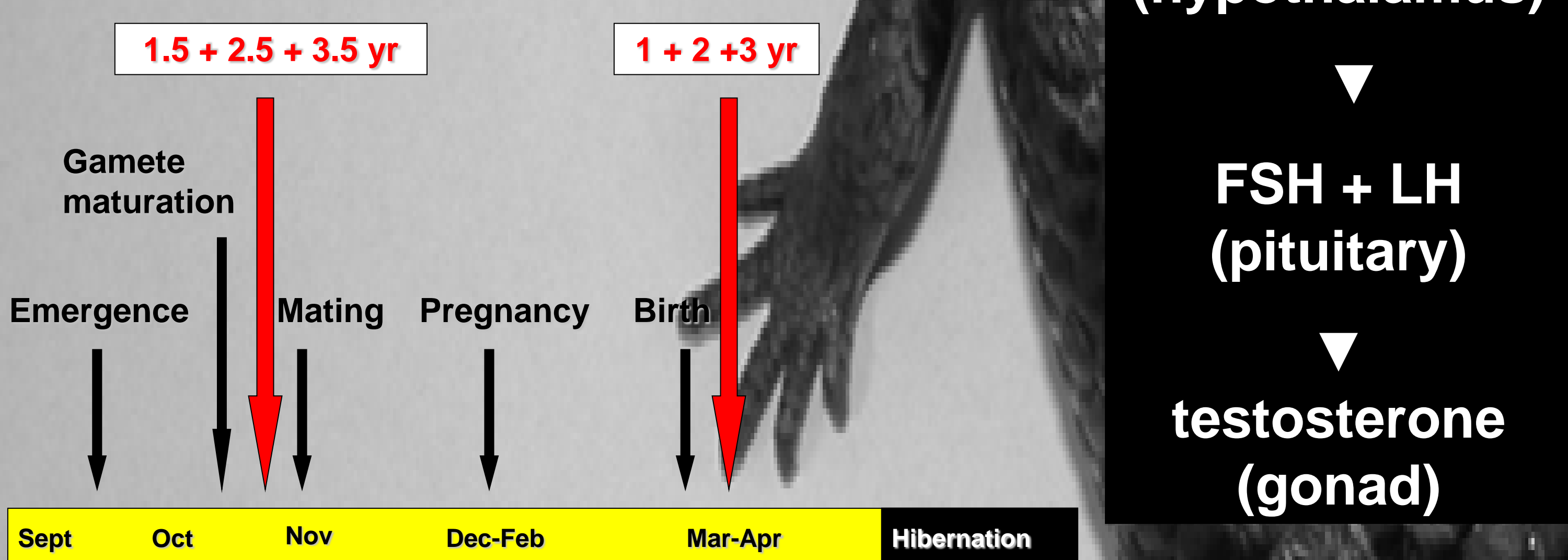
The blue-tongued lizard, *Tiliqua nigrolutea* is a long-lived reptile: males breed annually and females multiennially. We examined the timing of onset of physiological and morphological maturity in a **captive** cohort of 32 juvenile *T. nigrolutea*.

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Method

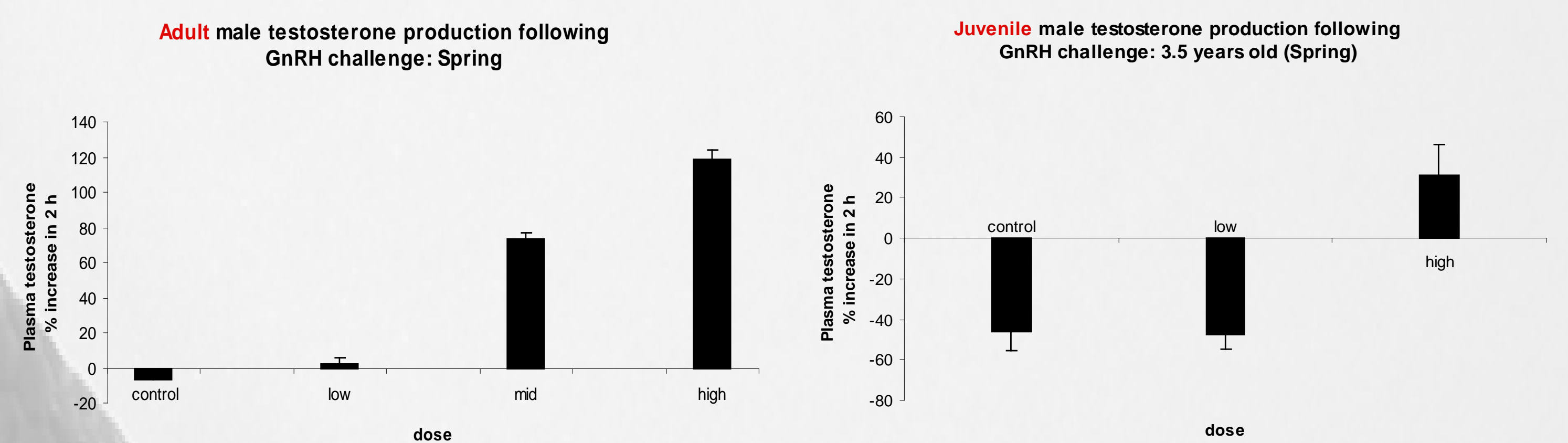
Stimulate reproductive hormone axis by injecting GnRH and measuring sex steroid production as a guide to physiological reproductive readiness at the start and finish of each active season.

Sample periods



Results: male physiology

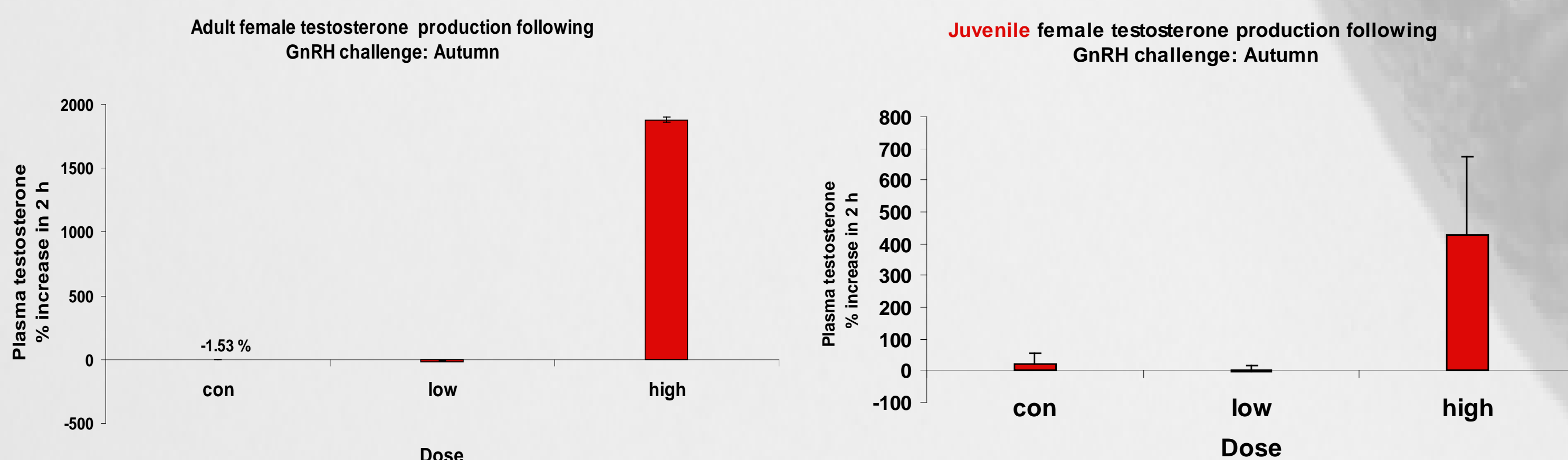
Adult males elevate plasma testosterone in response to GnRH at Spring mating, but not in Autumn when spermatogenesis is initiated:



Juvenile males at 3.5 yr still do not display an HPG axis responsive to GnRH stimulation in the same way as in adults i.e. juveniles were only responsive at the highest GnRH dose.

Results: female physiology

Adult females produce different amounts of testosterone, rather than estradiol, depending on their reproductive condition in both Spring (vitell.) and autumn (post partum):



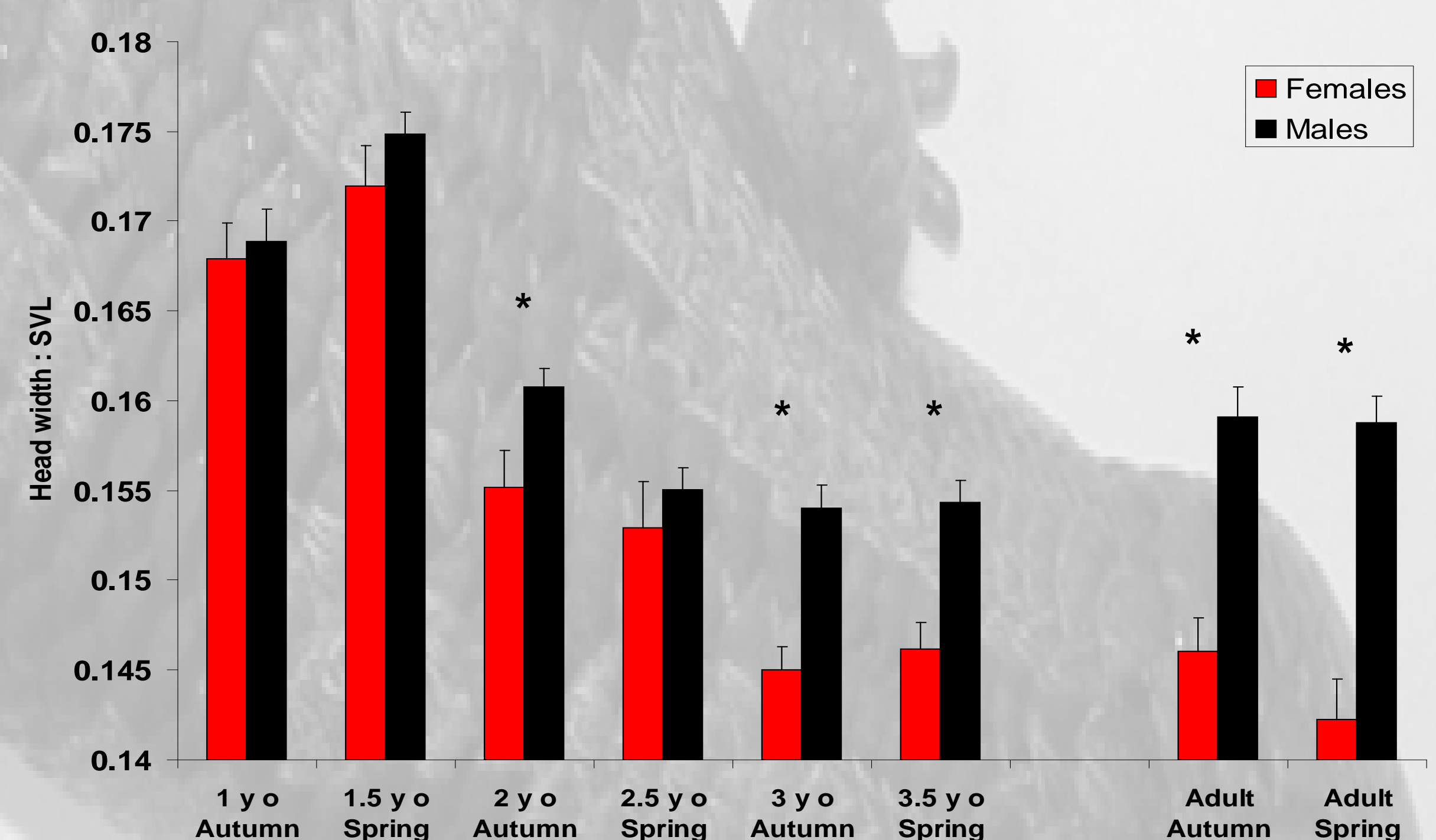
Juvenile females are preparing 6 mo in advance of their first reproductive effort, at 3 yr, in Autumn.

While the magnitude of response from juveniles is lower than in adult females, the pattern (and time of year – quiescent/post partum) is the same.

Juvenile females first became vitellogenic (palpation) at 3.5 yr.

Results: morphology

We examined changes in relative head width between adults and juveniles to explore the timing of morphological sexual maturity:



Juvenile males reach adult size in relative head width by 2 yr and minimum adult body length by 2.5 yr. * = sig. diff.

Juvenile males first produced a hemipenis exudate without sperm at 2.5 yr.

Summary

- There is sexual dimorphism in the timing of morphological and physiological maturity in this long-lived, viviparous reptile.
- Juvenile females (as adult females do) “plan” at least 6 mo in advance of a reproductive effort: This coincides with a significant morphological difference with juvenile males in relative head width.
- There is potential for discrepancy when judging maturity using exclusively morphological or physiological criteria.