



Chronic leptin infusion advances puberty onset in sham and pinealectomized normally fed female rats

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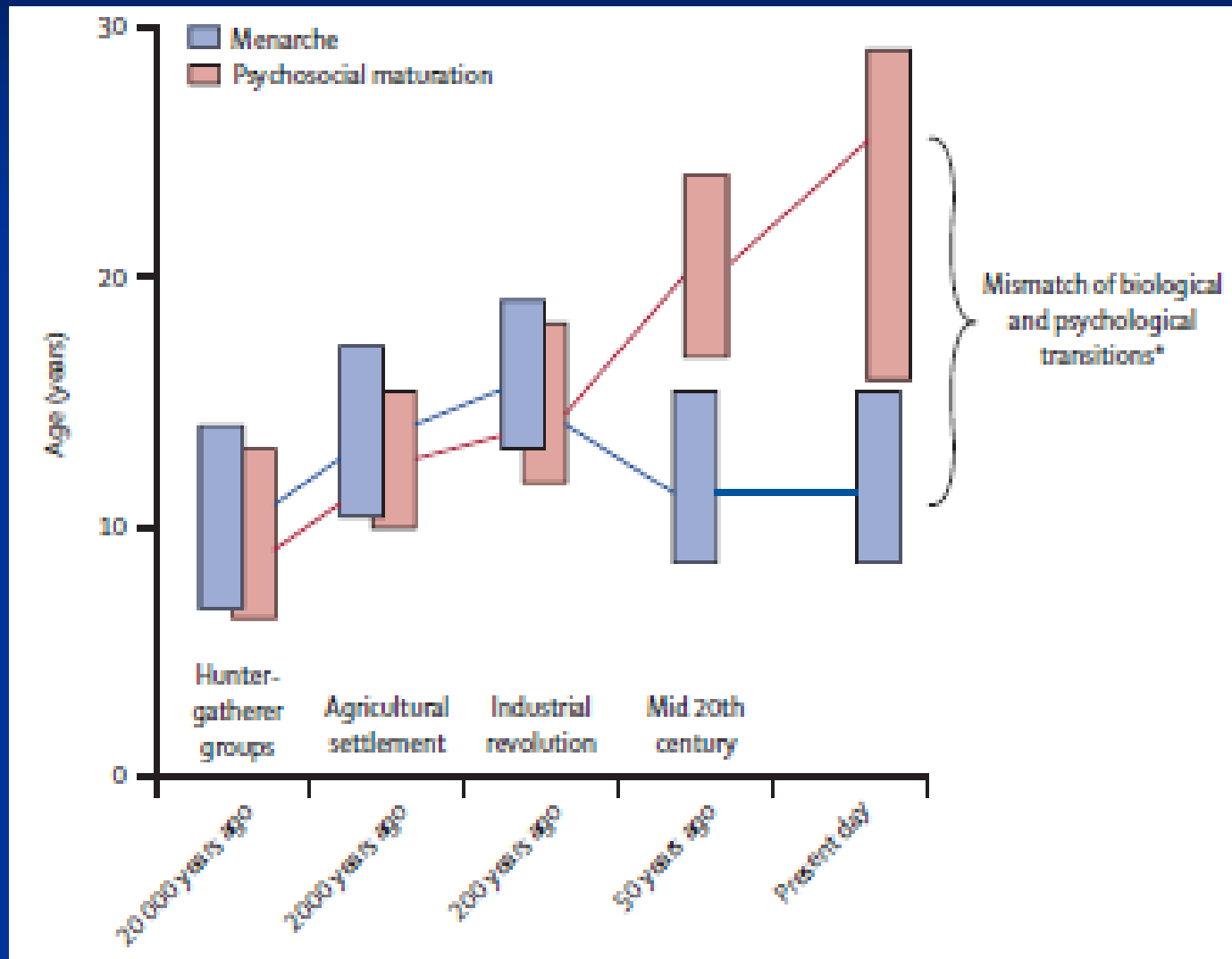
Topics

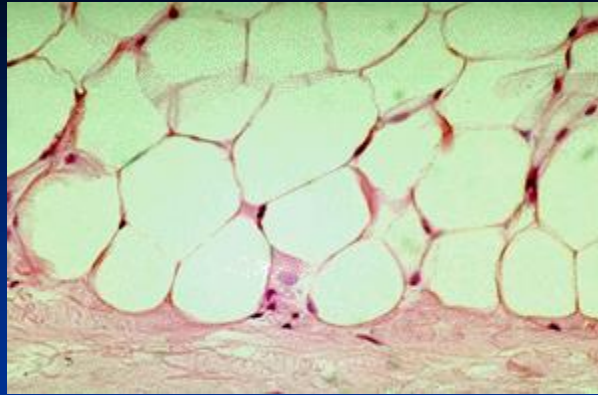
- Puberty
- Melatonin
- Leptin

My Pubertal Place



Changing relation between probable range of menarcheal age and psychosocial transitions into adulthood





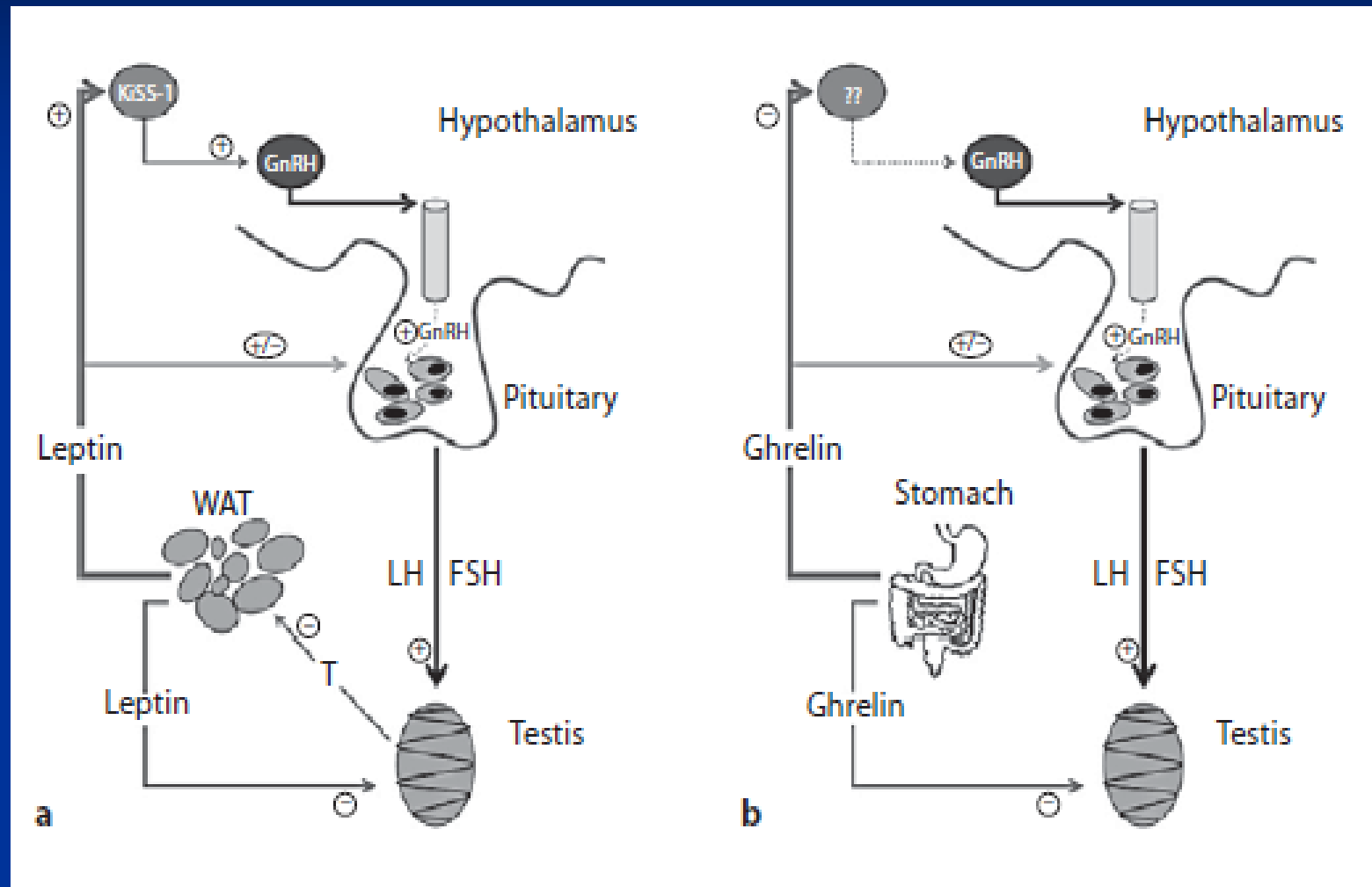
Leptin

Adrenarche

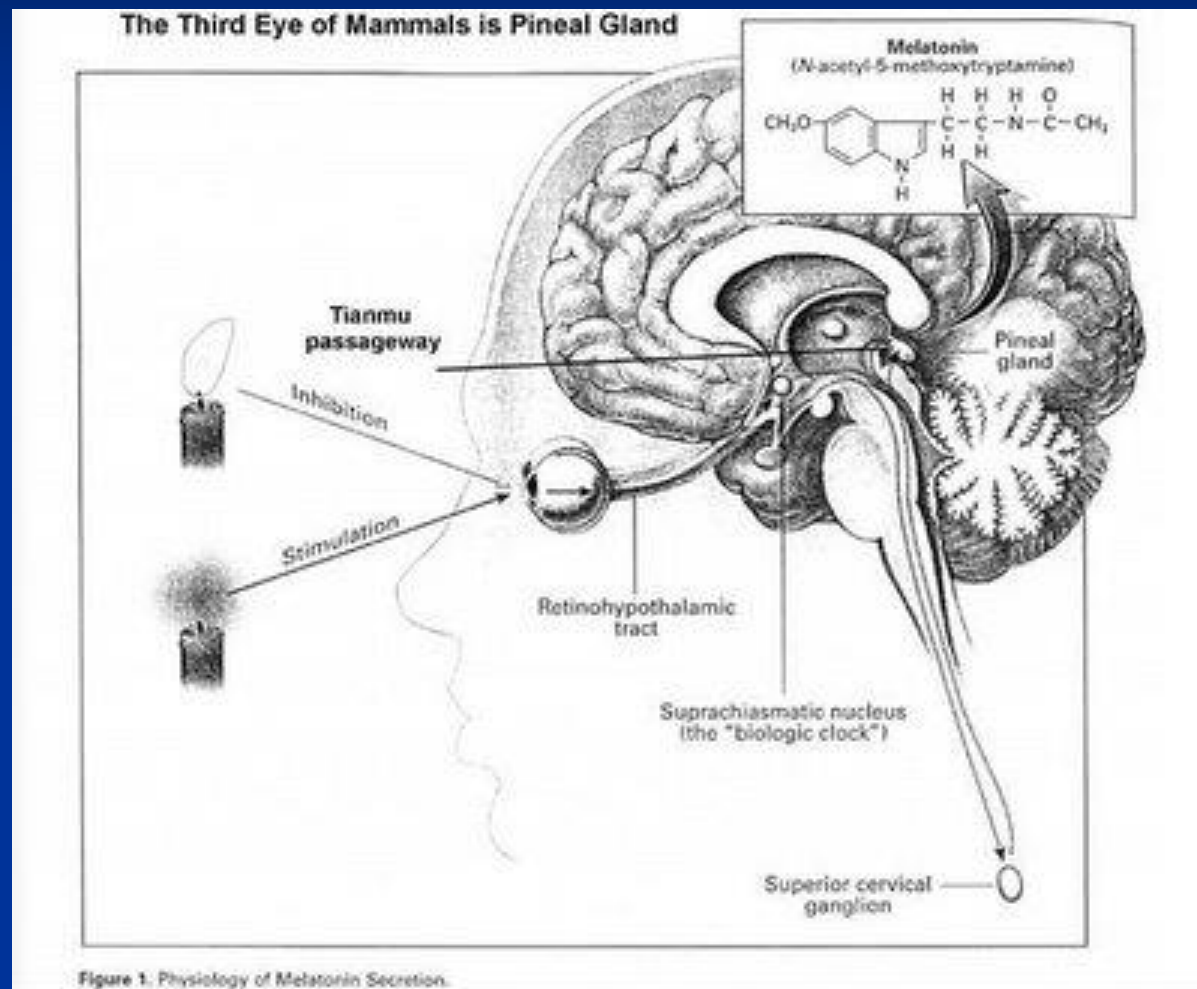
Gonadarche

Skeletal growth

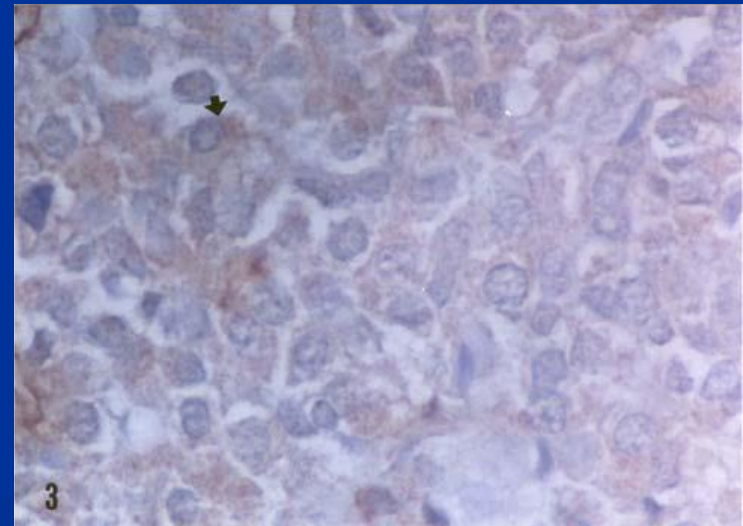
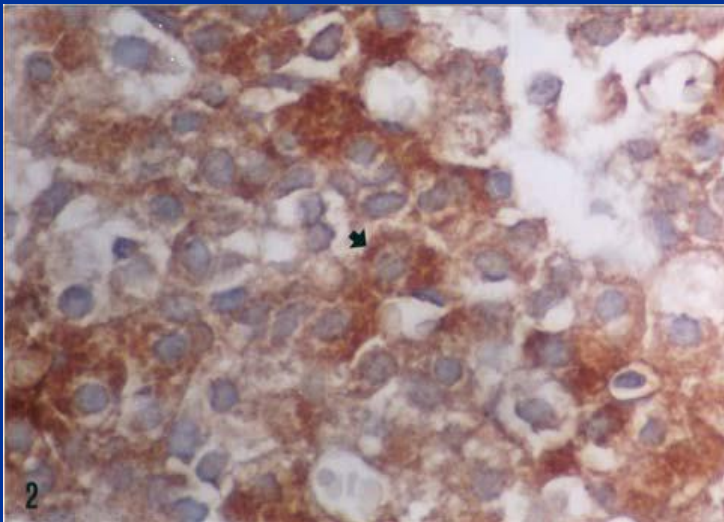
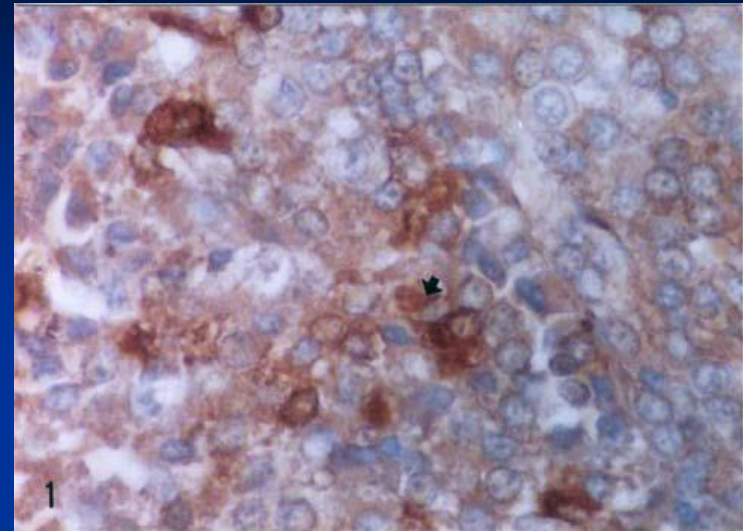
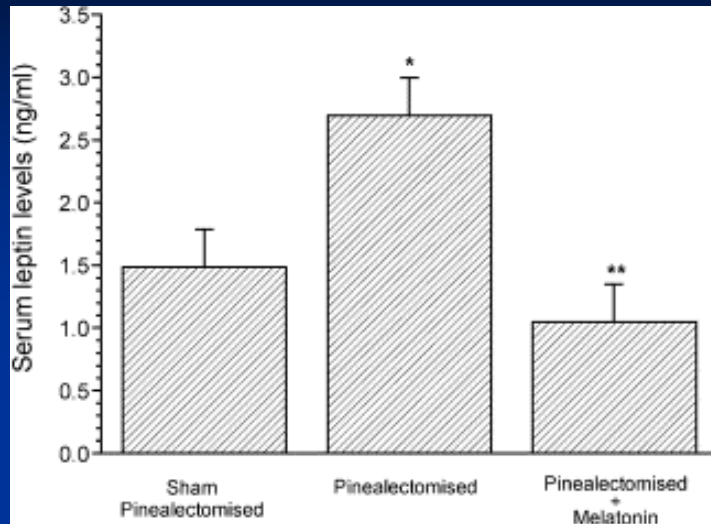
Schematic presentation of the reproductive roles of leptin and ghrelin



Pineal gland synchronizes seasonal reproduction with optimum environmental conditions.



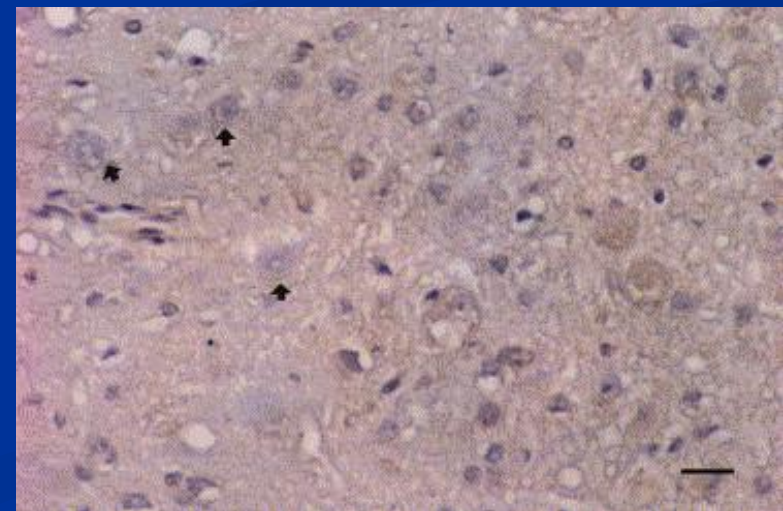
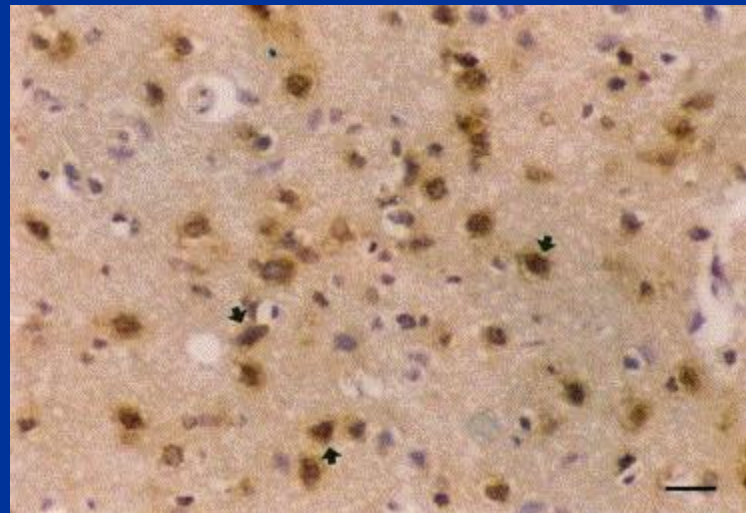
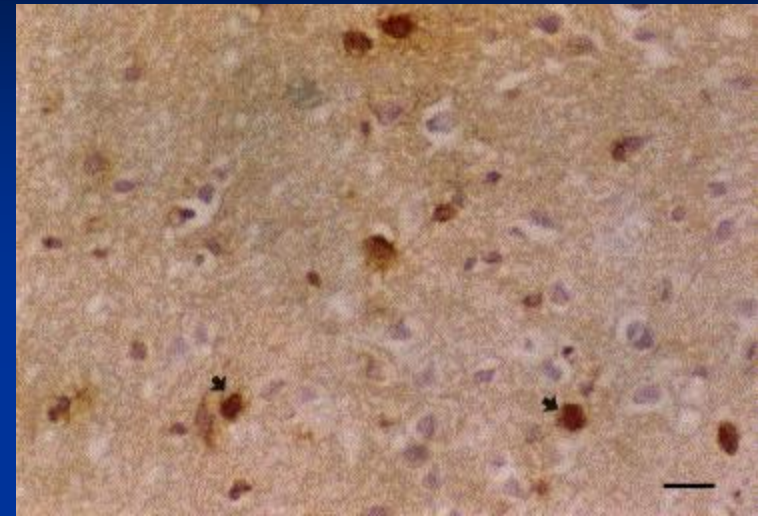
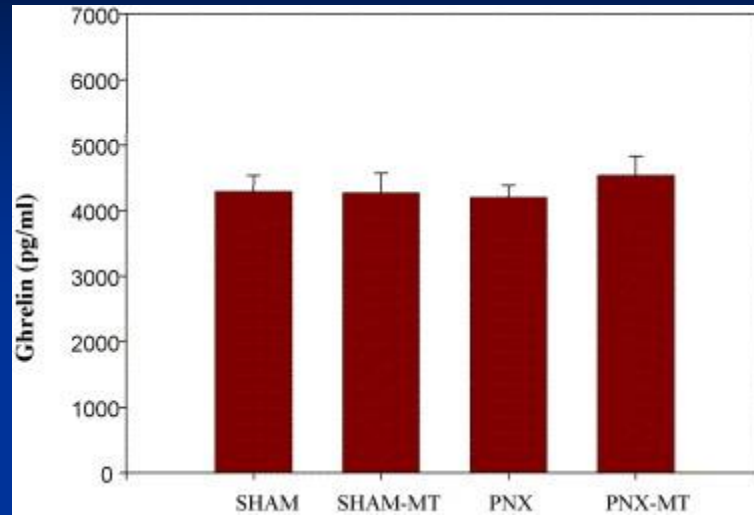
Effects of Pinealectomy on Leptin in Anterior Pituitary

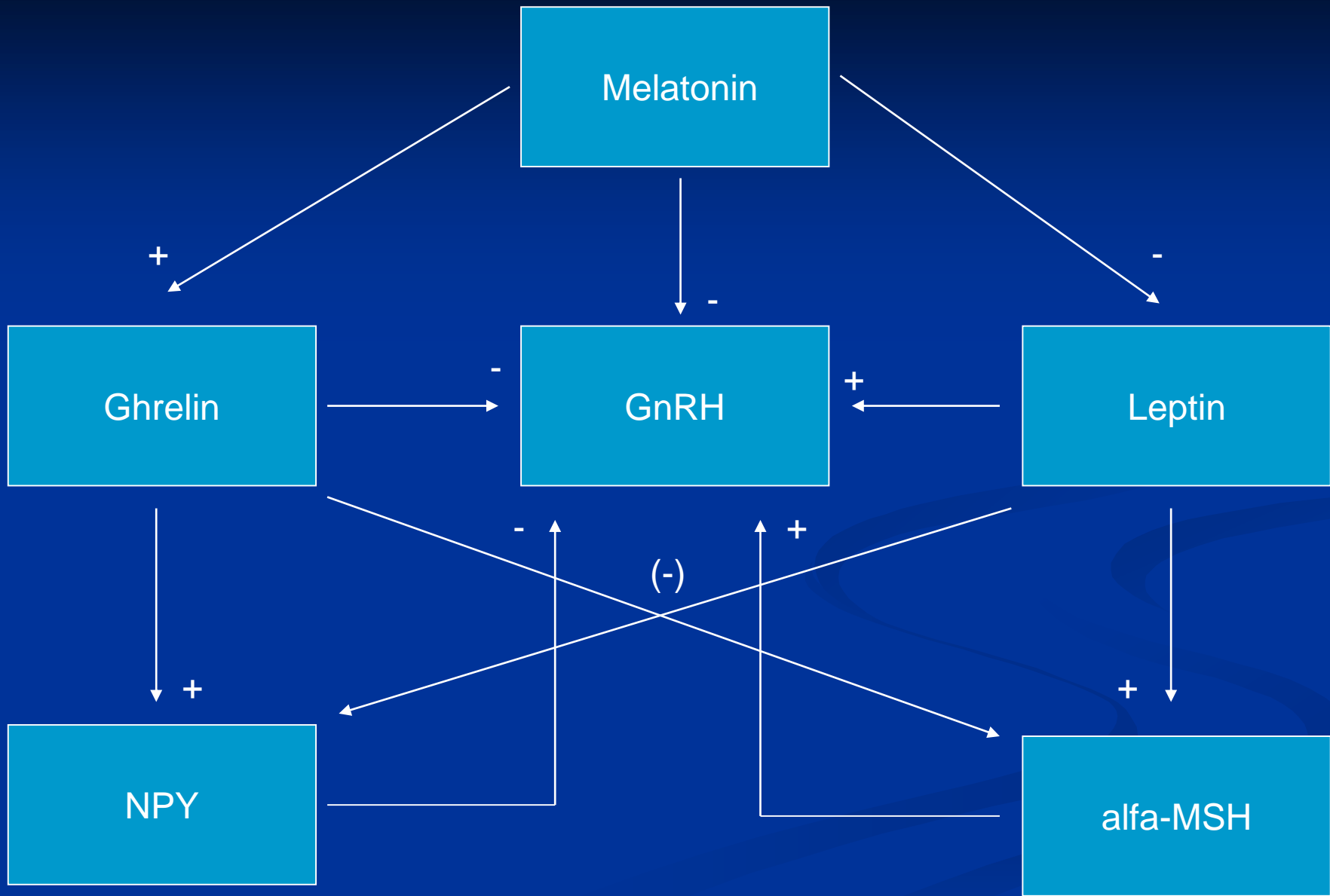


Canpolat et al. Eur J Pharmacol. 2001 Sep 28;428(1):145-8.

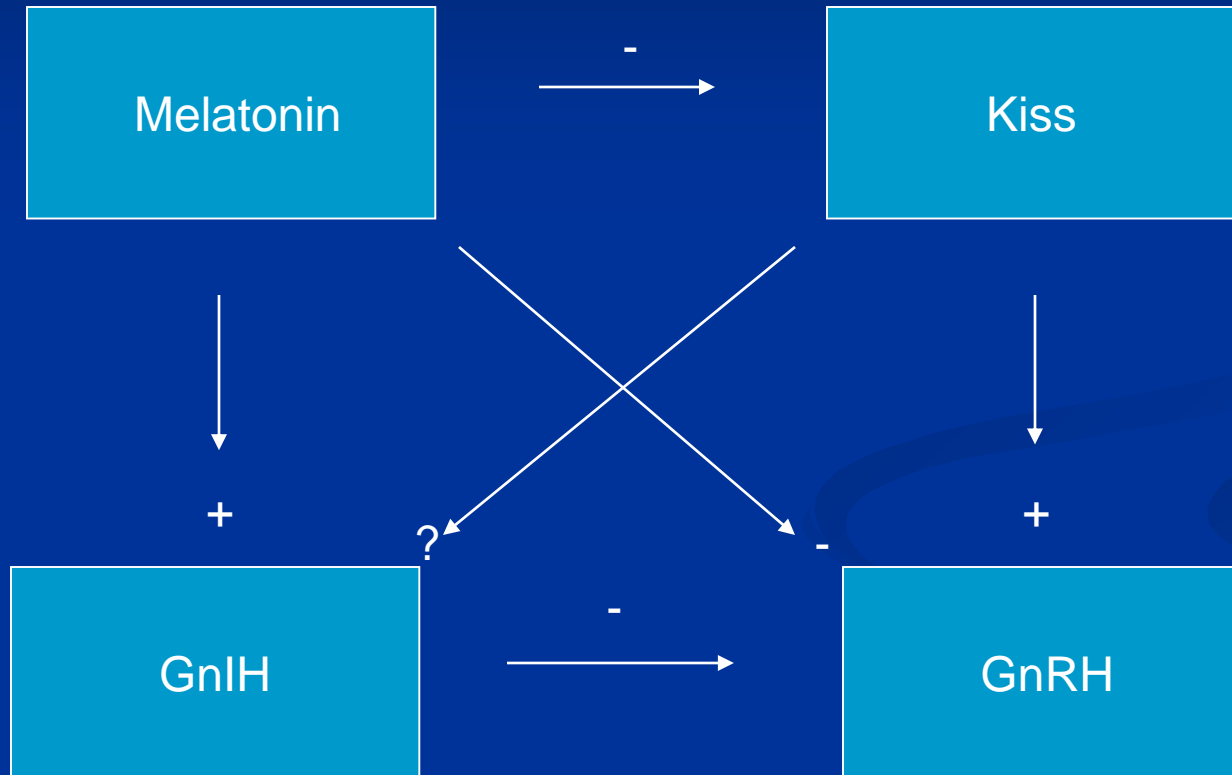
Kus I et al. Physiol Res. 2004;53(4):403-8.

Effects of Pinealectomy on Ghrelin in Arcuate Nucleus





KISS-MT Tango



Puberty-Leptin-Melatonin

- Precocious puberty is associated with high leptin and low melatonin levels.
- Delayed puberty is associated with low leptin and higher melatonin levels.







Obesity + More light = Early puberty

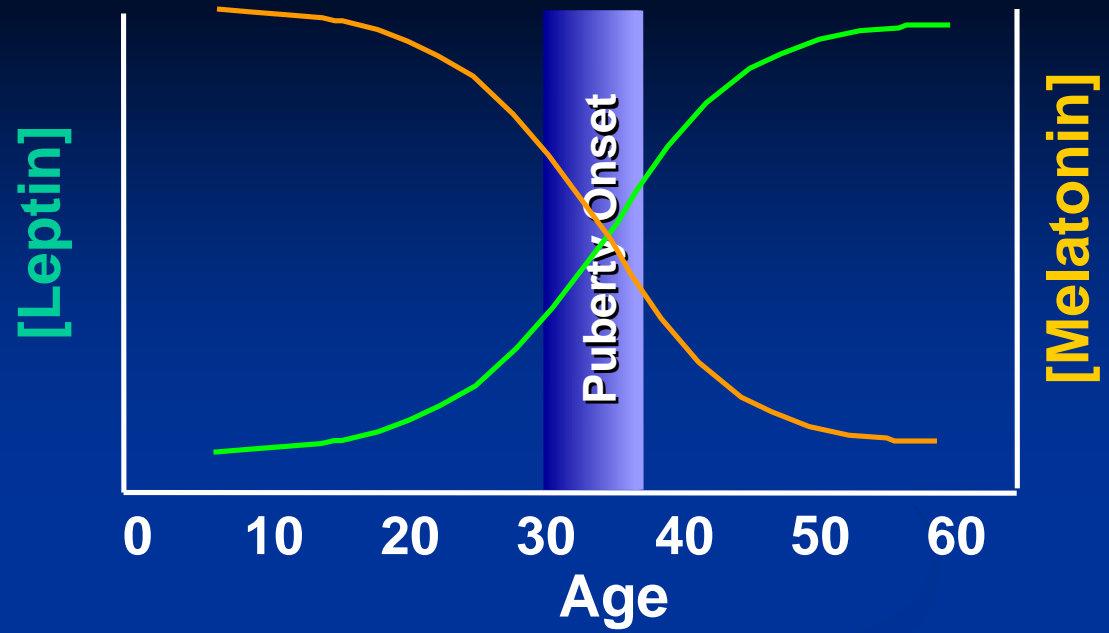
More leptin + Less melatonin = Early puberty

The questions

- Does prepubertal leptin increase advance puberty onset ?
- Can pineal gland modify the effect of leptin on puberty onset ?

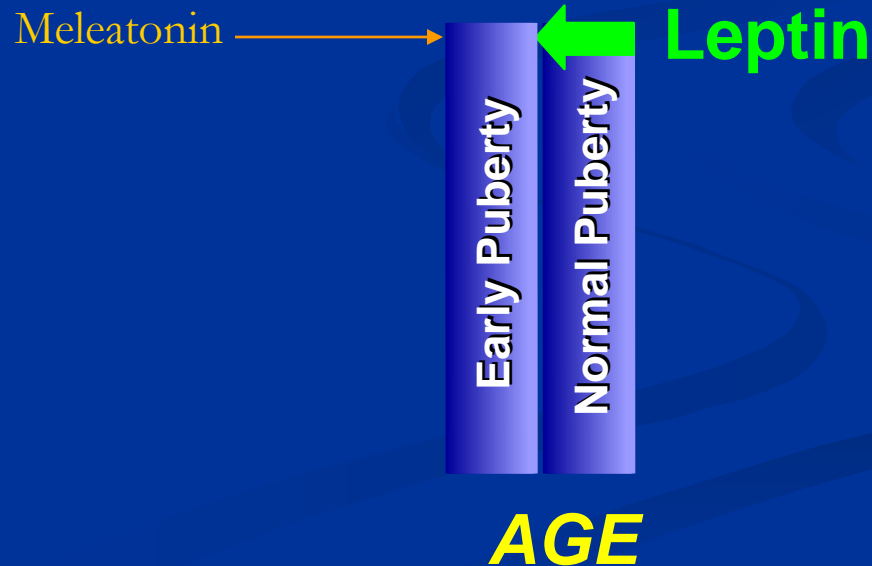
Hypothesis

A pubertal increase in leptin and decrease in melatonin gates onset of puberty



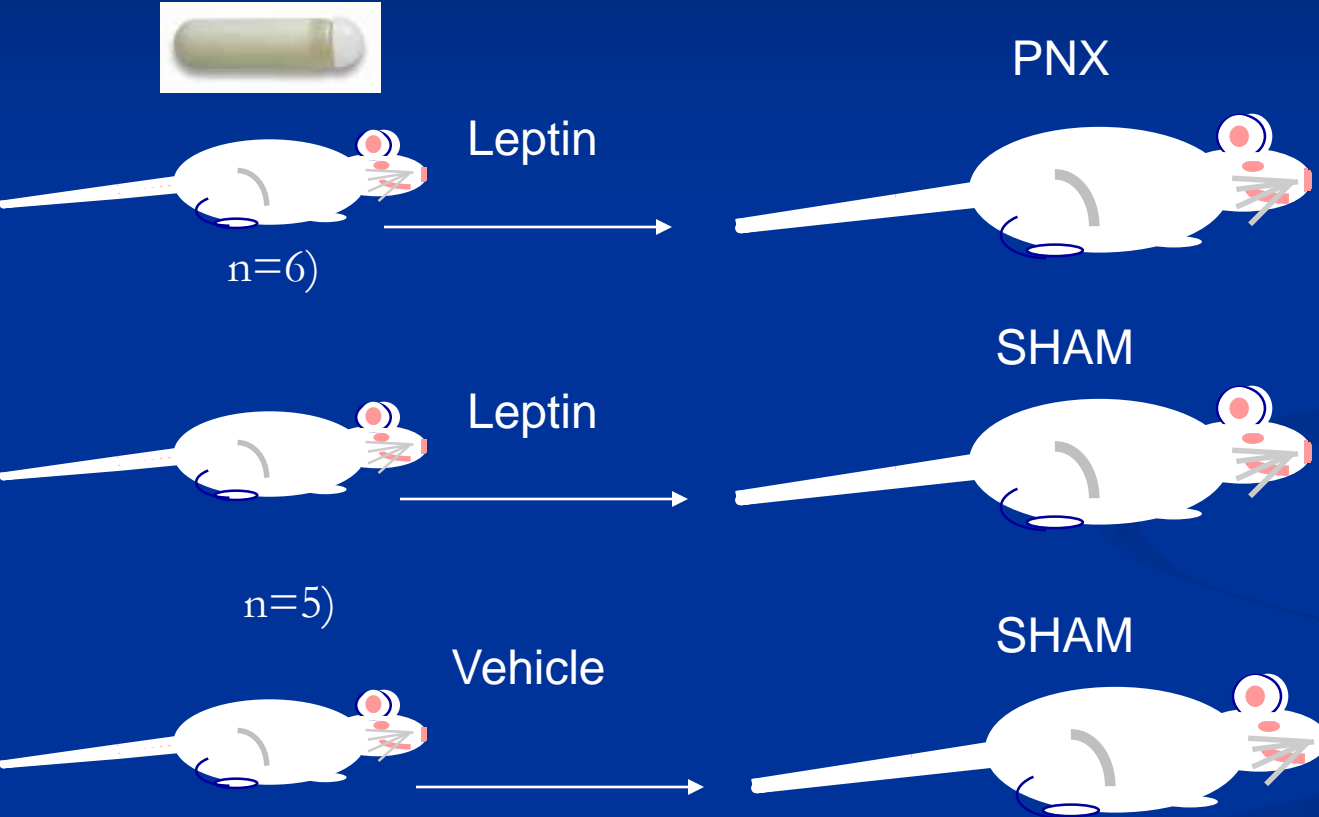
Test

Does the administration of leptin to prepubertal pinealectomized animals advance puberty onset ?



Experimental Design

Subcutaneous osmotic pump
implantation
(0.25 μ l/hour, 1 μ g/day, 4 weeks)



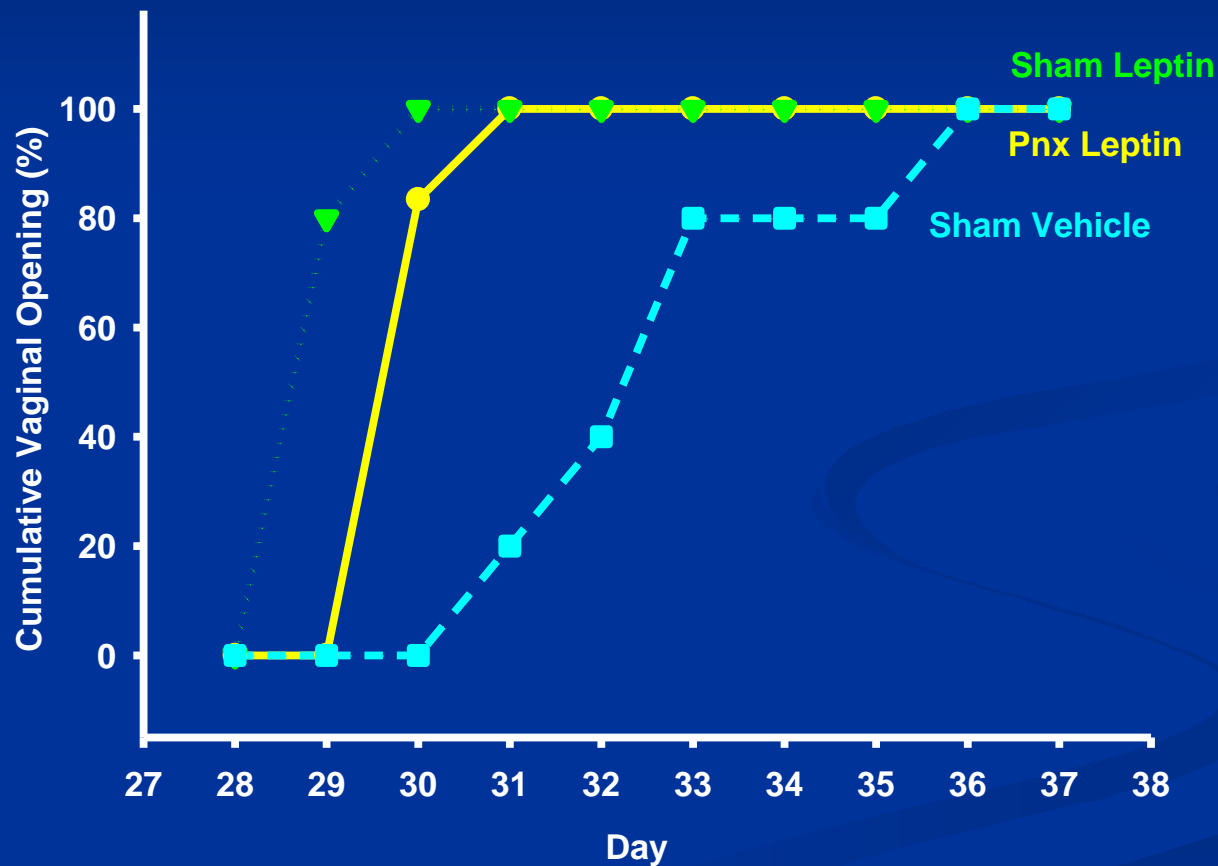
Examine

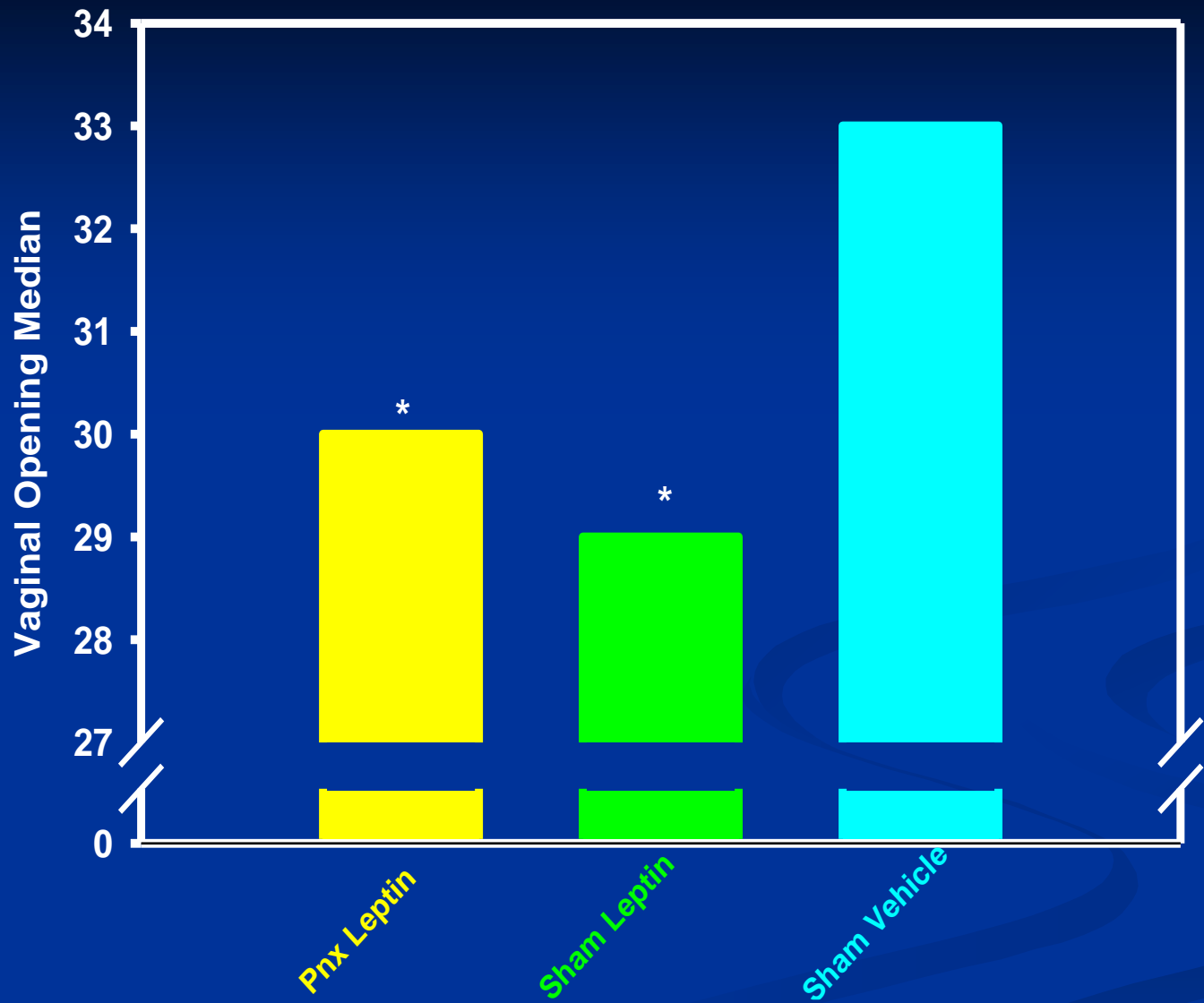
Body weight
Food intake
Day of VO
Oestrous cycle
Ovarian weight
Uterine weight

15 day old
Wistar Female Rats

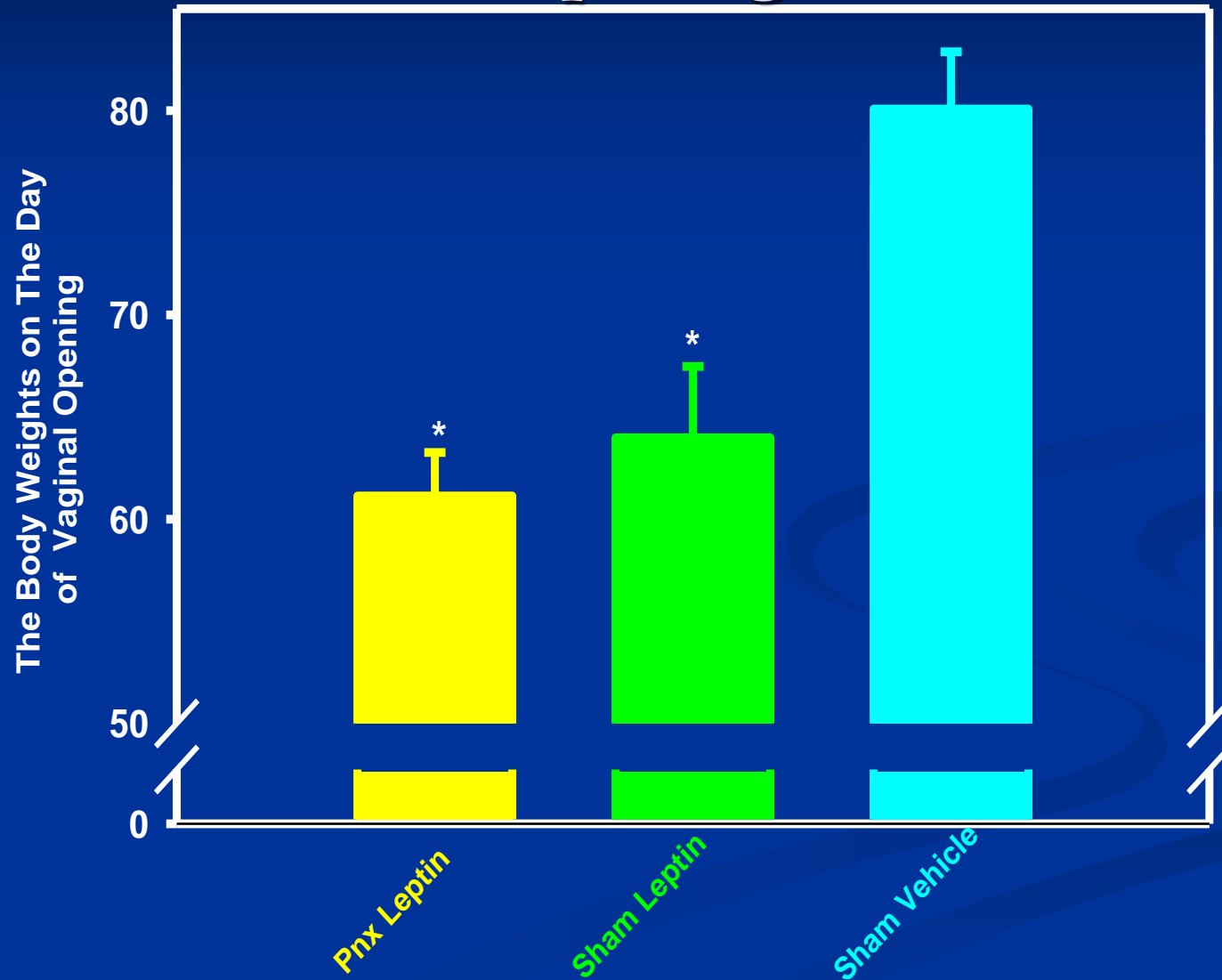
21st day

Effect of leptin on vaginal opening in pinealectomized rats

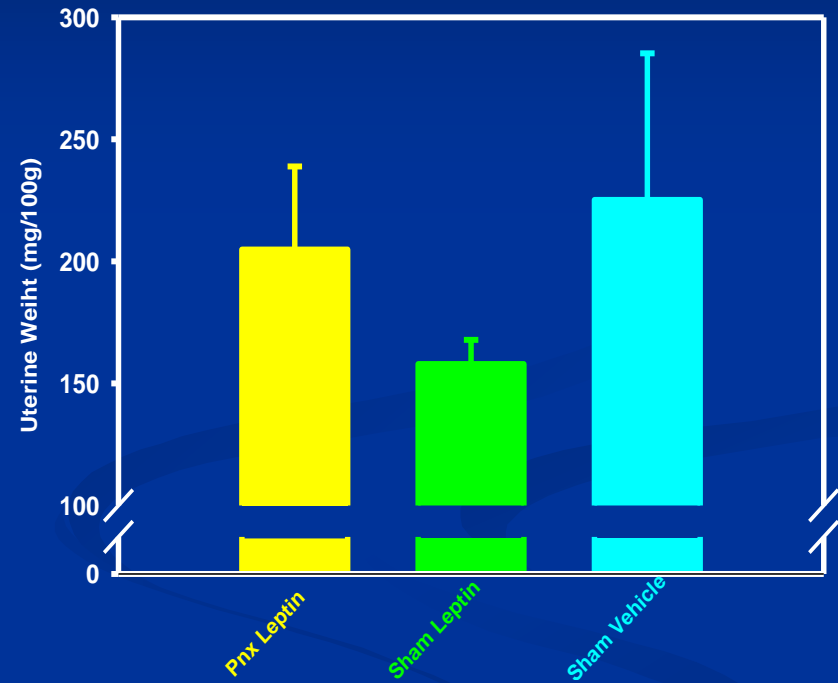
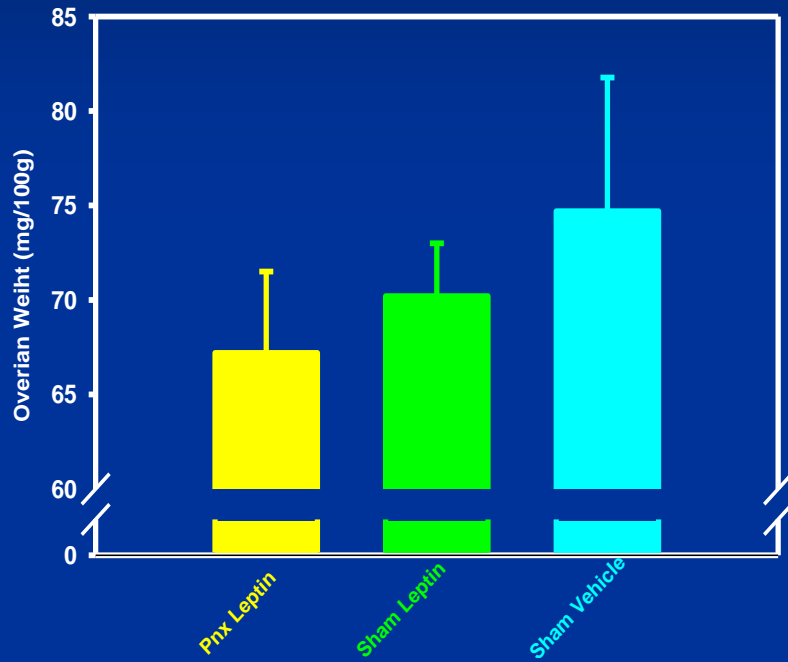




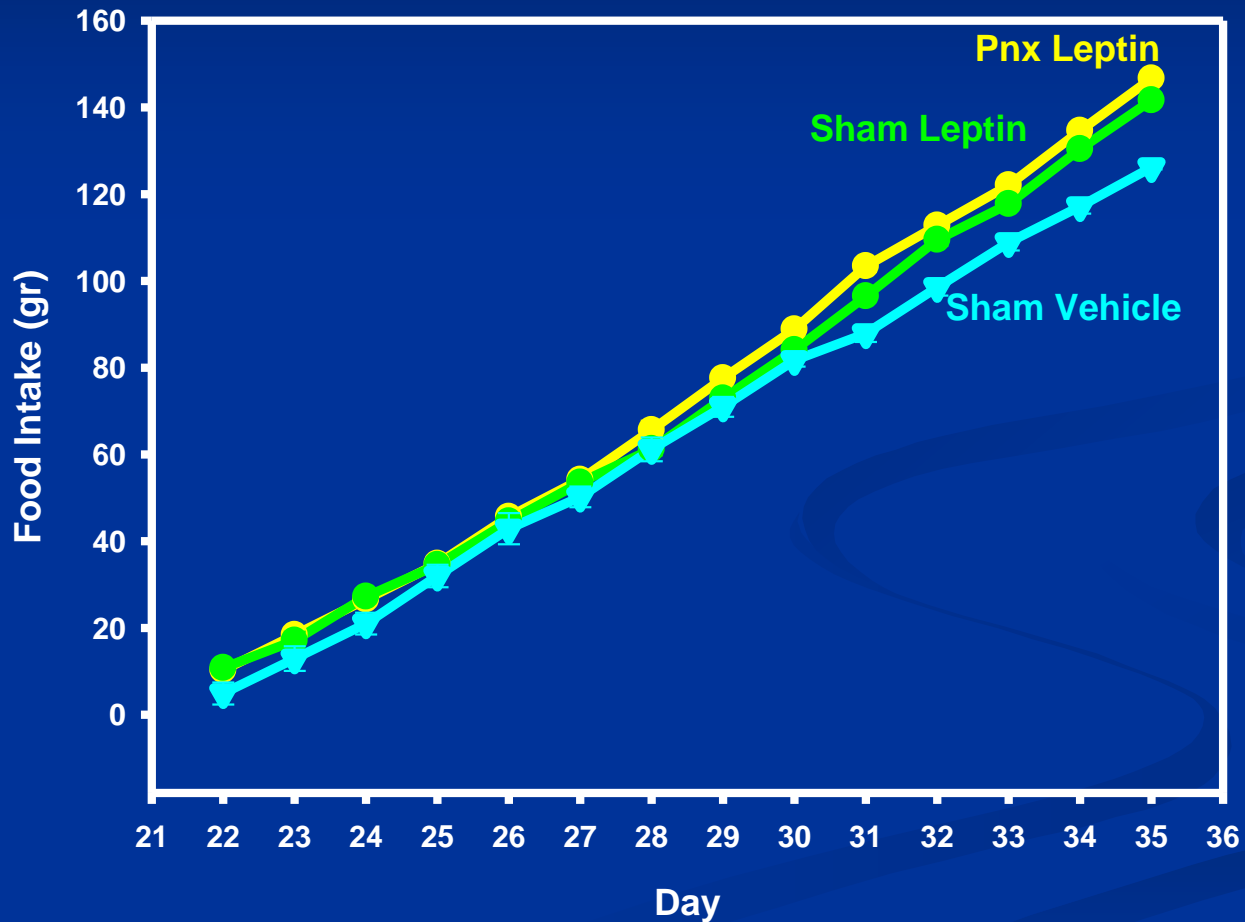
The body weights on the day of vaginal opening



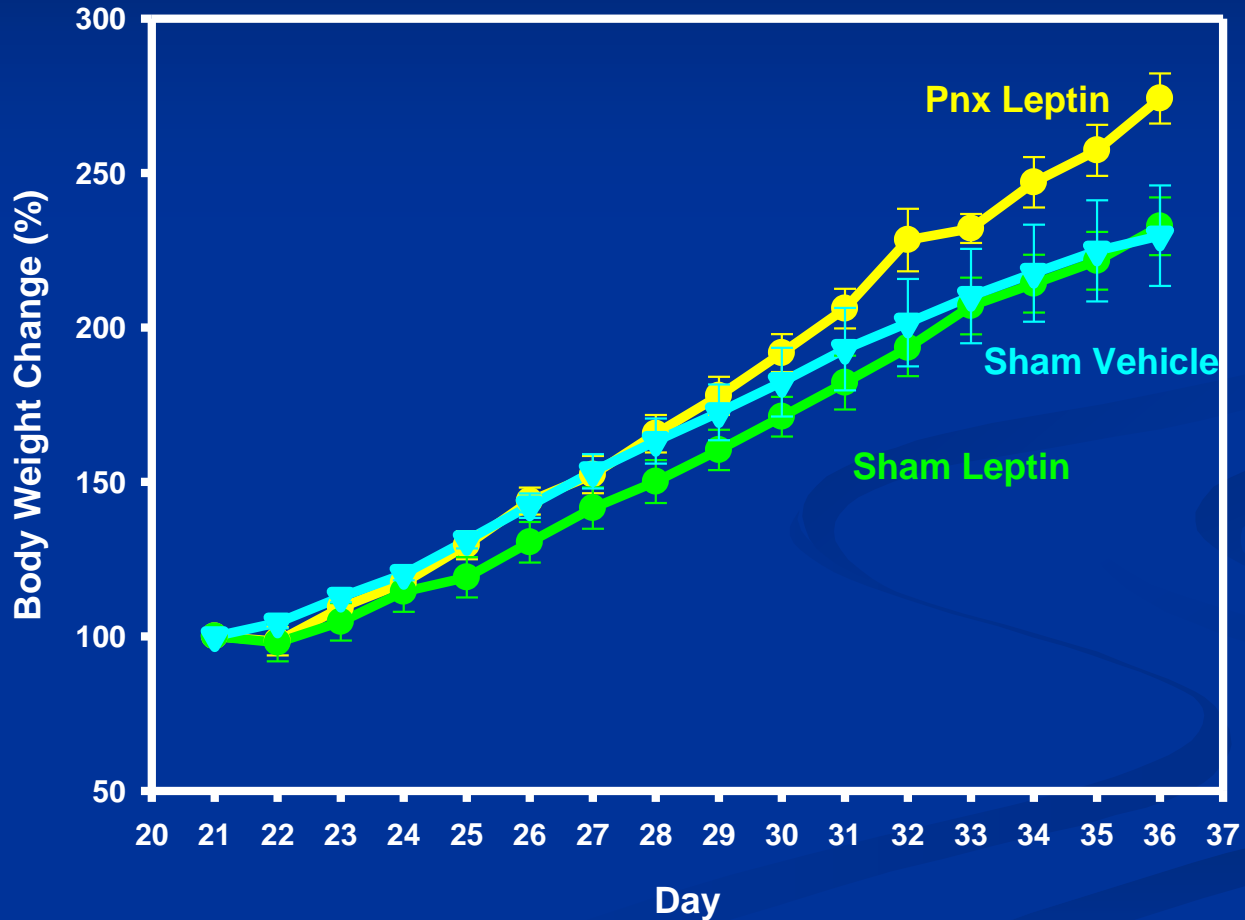
Effects of leptin on ovarian and uterine weights



Effect of leptin on cumulative food intake over time



Effects of leptin on body weight change (%)



Conclusions

- Pre-weaning peripheral leptin infusion advances puberty onset.
- Low leptin dose can advance puberty onset without affecting food intake.
- Leptin-infused rats showed puberty in a low weight.
- Leptin administration signals high fat store for brain in during weaning period.
- Pinealectomy did not modify effect of leptin significantly.

Contributors



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**Teşekkür ederim or
Thank you**