Objective
To evaluate how the regulation of TSH and prolactin adapt to restricted sleep (both acutely and in the long-term) and subsequent recovery.

Methods
Nine healthy males (age 23-27 yrs) participated in the study that included two baseline days with 8 h sleep (23-07 h), 5 days with sleep restricted to 4 h/night (03-07 h); and four recovery days (23-07 h). For nine of those days (see figures), blood was drawn every hour 23-08 h and every 3rd hour 08-23 h.

Discussion
The results add to previous knowledge of a homeostatic relation between sleep (loss) and the endocrine system, but also suggests that other mechanisms are involved in long-term adaptation to restricted sleep. Although compensatory, the homeostatic responses to sleep loss are still part of an allostatic-load, that may relate to future morbidity. A part of these long-term compensatory mechanisms may be altered sensitivity in the receptor systems, as indicated by recent findings of a desensitization of the serotonin (5HT) 1A receptor system of restricted sleep in rodents (1).

References:
(1) Roman V, Walstra I, Luiten PG, Meerlo P. Too little sleep gradually desensitizes the serotonin 1A receptor system. Sleep. 2005 Dec 1;28 (12):1505-10.