mice showed reduced ovarian weight, although significant differences in follicle counts were not observed (n=5). Increased adipose cell size has been reported in mice treated with excess androgens, therefore we examined histology of white adipose tissue (WAT) in these mice. Increased adipose cell size was observed in animals treated with DHT compared to controls. Brown adipose tissue (BAT) in NOD and 129 mice showed increased lipid storage in DHT treated animals compared to control. The expression of genes important in glucose response were measured, including *Glut4* (officially *Slc2a4*), and *Adipoq* as well as genes implicated in thermogenesis including *Prdm16* and *Cidea*. The WAT in NOD mice showed increased expression of *Glut4*, *Adipoq*, *Prdm16* and *Cidea* (n=5/group) suggesting increased glucose response in the WAT may contribute to the improved glucose response observed in these animals. 129 mice showed increased expression of *Glut4* and *Prdm16* in the WAT. Differences in BAT gene expression were not observed in either strain. Our studies suggest that genetic differences may contribute to the altered responses to excess androgens in women with PCOS resulting in differential severity of metabolic syndrome.

2:54 PM
FT2.24. Presenting as Poster Only—P257 in Poster Session B.

2:57 PM
FT2.25. Perinatal Nutrition Alters NPY Neuronal Projections to GnRH Neurons and Leptin Receptor Expression in the Choroid Plexus of Prepubertal Heifers.

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Perinatal nutrition modulates the hypothalamic neurocircuitries controlling GnRH pulsatile release, thus programing pubertal maturation in female mammals. Using the bovine model, objectives herein were to test the hypothesis that the combination of either 1) maternal obesity, in combination with a high rate of body weight (BW) gain in heifer offspring during the juvenile period (HH), or 2) maternal undernutrition, combined with a low rate of juvenile BW gain (LL), alters expression of leptin receptor (*Lepr*) splice variants (ObRa, b and c) in the choroid plexus of the lateral ventricle, and either decreases (HH) or increases (LL) the number of neuropeptide Y (NPY) neuronal projections to GnRH neurons during the juvenile period. Brahman × Hereford cows (n = 36) bearing female pregnancies were fed to achieve thin (L, n = 12), moderate (M, n = 12) or obese (H, n = 12) body condition (BC) by ~ 6 mo (second trimester) of gestation and maintained at the target BC until calving. Heifer offspring from each maternal group (L, M or H) were then weaned at ~3.5 mo of age and assigned randomly to be fed to achieve a high (H; 1 kg/d) or a low rate of BW gain (L; 0.5 kg/d) until 8 mo of age. For this report, we contrasted 3 of these maternal-postnatal combinations (HH, MH, LL). Brain tissue, including hypothalami and choroid plexus, were collected at slaughter. Total RNA from choroid plexus was isolated and RT-qPCR was used to determine the abundance of *Lepr* mRNA variants. Selected sections representing the preoptic area and mediobasal hypothalamus were processed for double-label immunofluorescence to determine the extent of NPY (inhibitory) projections toward GnRH neurons. Cow BW and BC did not differ at onset of feeding on day 90 of gestation. At parturition (270-285 d), LS mean (pooled SEM ± 22 kg) BW/BC for cows were 691.8/7.3; 610.5/5.4 and 494.1/3.0 for H > M > L ($P < 0.0001$), respectively. BW of heifer offspring did not differ at onset of feeding. At slaughter, final BW for HH (276.9 ± 15.2 kg) and MH (268.5 ± 15.2 kg) were similar but greater ($P < 0.001$) than LL (199.8 ± 14.5). Neither *ObRa* nor *ObRc* expression differed due to pre/postnatal diet combinations. However, LL heifers had greater ($P < 0.04$) expression of *ObRb* compared to both MH and HH. Moreover, the percentage of GnRH neurons highly innervated (≥10 close appositions) by NPY fibers increased ($P < 0.05$) by ~ 50% in LL compared to HH heifers. Preliminary observations indicated that reduced maternal nutrition tended ($P < 0.10$) to increase the magnitude of NPY projections to GnRH neurons. Collectively, these results indicate that undernutrition during pregnancy and juvenile development alters the expression of *ObRb* in the choroid plexus and may alter the pattern of leptin transport across the blood-brain barrier. Additionally, our findings suggest that perinatal nutrient restriction increases NPY (inhibitory) neuronal projections to GnRH neurons, which likely hinders the process of pubertal maturation. Research supported by USDA-NIFA Grant 2013-67015-20960 to GLW.

3:00 PM
FT2.26. Ovarian Suppression with Oral Progestin Facilitates Successful Laparoscopic Oviductal Artificial Insemination in the Fishing Cat (*Prionailurus viverrinus*) and Ocelot (*Leopardus pardalis*).

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Artificial insemination (AI) is a potentially valuable tool for conservation management of endangered felids, but efficacy is inadequate for applied usage with most species. One challenge is the need to suppress ovarian cyclicity prior to exogenous gonadotropin treatment to obtain appropriate ovarian synchronization for AI. Cat species exhibit different ovulatory mechanisms (spontaneous vs. induced) and vary in their sensitivity to exogenous gonadotropins (for ovarian follicular stimulation) and oral progestin (for ovarian follicular suppression). Our objectives in this study were to 1) assess ovarian sensitivity to oral progestin in two felid species – the spontaneously-ovulating fishing cat (*Prionailurus viverrinus*) and the induced-ovulating ocelot (*Leopardus pardalis*), 2) evaluate ovarian responses in each species following gonadotropin treatment.

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