Poster #39

Dietary Phytoestrogens and Photoperiodic Response in Male Dark-Eyed Juncos (*Junco hyemalis*)

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Many commercial bird diets are made with soy products that contain phytoestrogens (i.e., plant compounds that have weak agonist activity at estrogen receptors), but the effects of these compounds on bird physiology and behavior are largely unknown. The primary phytoestrogens present in soy are the isoflavones genistin and diadzin. Two groups of wild-caught male Dark-eyed Juncos (*Junco hyemalis*) were fed a diet either made with water-washed soy protein with 2.43mg/g total isoflavones (soy+) or made with soy protein that had been alcohol washed to extract isoflavones so that the protein contained only 0.032mg/g total isoflavones (soy-). A blood sample was drawn from each bird and cloacal protuberance (CP) width measured on the day (wk1) photoperiod was changed from short (8L:16D) to long days (LD, 16L:8D) and once weekly thereafter (wk2-13) for the duration of the experiment. Both groups exhibited a photoperiodic response, as evidenced by increases in luteinizing hormone (LH) and CP width. Univariate repeated measures analysis indicates that there was no statistically significant difference in LH due to diet. The rate of CP growth was significantly affected by diet, with the CPs of soy- birds increasing faster than in soy+ birds in the 4th through 8th weeks after exposure to LD. In contrast, CPs were significantly smaller in soy- birds than in soy+ birds in the 9th through 11th weeks after exposure to LD, suggesting that rise of CP width occurred faster in the soy+ birds but reached a plateau at a significantly smaller maximum than in the soy- birds.

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