MADISON STRATTON & HOLLY VOPAL Dept. of Biomedical Sciences, West Liberty University, WV, 26074. Morphological Differences of the Thyroid Gland in Avian Model of Induced Thyrotoxicosis.

Thyrotoxicosis is the condition caused by an excessive amount of thyroid hormones (THs), thyroxine and triiodothyronine, in the blood stream, often resulting from hyperthyroidism (i.e. Graves' disease) or the intake of too much synthetic TH (i.e. levothyroxine-induced hyperthyroidism). One of the known symptoms of hyperthyroidism is an enlarged thyroid, or goiter. However, rather than causing goiter, many cases of thyrotoxicosis without an underlying cause, may shrink the thyroid through negative feedback of thyroid-stimulating hormone (TSH), the hormone responsible for thyroid growth. In our avian model of induced thyrotoxicosis, fertilized chicken eggs were injected into the egg's air cell on embryonic day (E) E11 and E15. Chicken embryos were therefore exposed to either saline (control) or 25ng thyroxine (treatment). Thyroid glands were collected on E19 and then prepped for paraffin embedding. Collected thyroids were smaller in size than predicted, leading to an adjustment of standard sectioning protocols requiring thin sectioning (4 microns). Previous studies in our lab have demonstrated a decrease in TSH with treatment. Therefore, we anticipate that following hematoxylin and eosin (H&E) staining and imaging, measured thyroid follicles will be smaller with thyroxine exposure. These findings will confirm that molecular and morphological observations made using our avian model are due to our treatment, and not to an underlying thyroid condition.

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