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The effects of dietary antioxidants on oxidative stress levels in European Starlings, *Sturnus vulgaris*

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Olivia Fatica

ECSC 2017

Mentor: Barbara Pierce

Fatica: The effects of dietary antioxidants on oxidative stress levels in

The effects of dietary antioxidants on oxidative stress levels in European Starlings, *Sturnus vulgaris*.

Migratory birds rely heavily on the condition of their muscles and the quality of their fat stores to make it safely to their destinations. But unfortunately, they cope with severe muscle damage due to their extremely long endurance flights, which can greatly affect their performance in a negative way. Antioxidants (AOs) are components that combat this muscle damage. Uric acid is considered to be an endogenous antioxidant and reliable biomarker for oxidative damage and is released during muscle catabolism. In this study, female European Starlings underwent a strict training regime leading up to a 6-hour migration simulation. Groups of starlings, both trained and untrained, were fed diets with either no dietary antioxidants added or diets supplemented with antioxidants in the form of anthocyanin. Blood was drawn at three time points- a background sample as a base statistic, a post-flight sample immediately after migratory flight, and a final sample two days after flight recovery. Uric acid levels were measured in blood plasma using TECO Diagnostics Uric Acid Reagent Set. I predict that the uric acid levels will be significantly higher in the absence of the dietary antioxidant, especially in trained birds, as the body will only have access to their endogenous AOs. I also predict that levels of uric acid will be significantly lower in the presence of the dietary AOs due to the decreased amount of oxidative damage and the break down lean tissue. Preliminary results suggest a possible correlation between levels of uric acid and dietary antioxidants.