Wolbachia* Effects on Starvation Resistance in *Drosophila melanogaster

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The purpose of this project is to investigate the effects of *Wolbachia* on starvation resistance and weight differences of *Drosophila melanogaster*. While *Wolbachia* effects on insects are widely studied and highly variable, its persistence in *Drosophila* remains less understood. Given that many *Drosophila* species exhibit a consistent infection rate of *Wolbachia*, this research seeks to determine whether specific survival-based advantages or disadvantages maintain this infection prevalence. *Drosophila melanogaster* that have been selected for their resistance to starvation will be compared to those that have been fed normally. I will experimentally control for *Wolbachia* infection by providing an antibiotic, tetracycline, to remove *Wolbachia* from both populations of fed and starvation-selected *Drosophila* and compare to flies of each type with normal *Wolbachia* infections. After two generations of antibiotic treatment, I will measure weight at 3 days of age of adult flies and adult survival during starvation resistance (10 days with agar and no food). I will analyze the differences between *Wolbachia*-infected and uninfected populations, aiming to determine the advantages and disadvantages of *Wolbachia* infection in *Drosophila melanogaster*. Future research will examine the change in the gut microbiome due to *Wolbachia* in starvation-selection and fed populations.