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The influence of environmental conditions on lifespan and alcohol intake in Drosophila melanogaster

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The environment that one experiences is often a major determinant of many health-related phenotypes, however, we do not fully understand these effects and how they differ depending on the genotype of an individual. In order to explore these effects, two experiments were designed to better understand how the environment influences key health-related phenotypes, both using the model system *Drosophila melanogaster*. First, we will test how different diet environments affect the lifespan of *D. melanogaster*. Previous studies have shown that diets of high sugar cause a reduction in life span in flies, and a dietary restriction diet causes a longer lifespan in flies. We show that the flies on the high sugar treatment had a shorter lifespan than the control and dietary restriction groups. Second, we plan to test the relationship between social isolation and alcohol intake in *D. melanogaster*. Research has shown that using perceived social isolation can decrease lifespan in fruit flies, increase obesity in rats, and cause humans to have a faster cognitive decline (Hawkley & Cacioppo, 2009). We expect social isolation will cause flies to consume more alcohol-containing food than fruit flies that are not isolated. The purpose of these experiments is to increase our understanding of how environmental conditions influence behaviors and life history traits, with the broader goal of connecting this model to human health.