

The Effects of Intermittent Fasting on Male *Drosophila* Lifespan
Oral Presentation:

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Previous studies have shown that dietary restriction through intermittent fasting has extended lifespan in animal models such as mice, rats, and pigeons. The purpose of this study was to determine if intermittent fasting could also extend lifespan in *Drosophila melanogaster*. *Drosophila* is a valuable model organism for lifespan studies with many reports of enhanced longevity through a variety of environmental and genetic manipulations. Past diet restriction studies have been conducted using paper filters to deprive food to flies short-term, but it has been found that the fly can take up water from these filters much faster than it can take in regular food. This inconsistency in substance intake creates an intervening variable. In the present study, methodology was improved by providing intermittent fasting to flies on agar, which has a similar consistency to regular fly food. Two groups of male flies were food deprived in vials containing agar and water for 6 and 12 hours within a 48-hour period. Control flies were kept on constant food. This procedure was replicated three times. Previous studies involving *Drosophila* starvation report a decrease in lifespan for both males and females. After analyses of lifespan curves established for the three groups, it was determined that intermittent fasting did not significantly extend or reduce lifespan in male *Drosophila*. Replicate one showed a mean lifespan for control flies, 12 hour starvation flies, and 6-hour fasted flies of 72.5 days, 67.5 days, and 63.1 days, respectively. Replicate two flies had mean a lifespan of 52.0 days for control flies, 51.1 days for 12- hour fasted flies, and 45.8 days for 6-hour fasted flies. The third replicate, which used unmated flies, showed mean a lifespan of 65.0 days in control flies, 59.7 in 12- hour fasted flies, and 64.6 in 6-hour starvation flies. These data indicate that the mechanism that causes lifespan extension in mammals by intermittent fasting is not conserved in *Drosophila*. However, it would be useful to t