Searching for the Fountain of Youth: Exploring the Relationship Between the Natural Phenol Resveratrol and Diet to Examine Longevity in Drosophila melanogaster

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Many doctors often recommend “a glass of wine at night” to many patients to resolve blood-sugar issues, increase immune system strength, and promote cardiovascular health. It has been found that resveratrol, a plant polyphenol found in the skins of grapes, has been linked to longevity and is commonly used as a dietary supplement. In previous studies, it has been tested in model organisms such as rodents and dogs, which have extended lifespans and yield delayed results. By using a Drosophila melanogaster model, results can be obtained quickly, while using homemade wine ensures that the resveratrol has undergone no harmful industrial chemical processes. Wild-type D. melanogaster test subjects were given one of three diets (one of which consisted of fermented muscadine, a natural source of resveratrol) and tested with and without the addition of concentrated resveratrol. To closely measure longevity, subjects were checked at daily intervals to record any deaths. Furthermore, males and females were kept separate to keep populations constant. Results showed that using resveratrol as a dietary supplement increased the average lifespan in all cases. This extension has been associated to the activity of Sir2, an NAD+-dependent histone deacetylase. Fermented muscadine showed extended maximum lifespans when compared to other diet plans. Future studies could involve gene studies to see if genes related to aging undergo any change in expression with the change in nutrition and if these genes are orthologous to any on the human genome.

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