How diets affect mortality rates of fruit flies?

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Ageing usually refers to the process of organisms growing older and is always accompanied by an increase in mortality rates and a decrease in reproductive rates. Mortality rate should increase exponentially during ageing but has been shown to level off at very late ages in species like fruit flies. This period with the stabilization of mortality rates in adulthood is called late-life. In my thesis, I have been feeding fruit flies on three diets with high, medium and low concentration of yeast. The lower concentrations represent a moderate dietary restriction (DR), which has been shown to affect the lifespan of many species. I investigated how mortality rates of flies responded to the diets and if this response was different between males and females

I found that diet affected mortality rates in late-life and that the effect was different between sexes. Male flies on low concentration diet started late-life later, compared to that on high concentration diet. However, female flies did not stabilize their mortality rates on low and high concentration diets. Interestingly, males got a maximal lifespan on low concentration diet but females' lifespan peaked on medium concentration diet. Therefore diets had a strong effect on mortality rates in late-life and this effect was different between males and females. Lifespan extension by diet may differ between male and female flies. This has many implications to dietary effect on lifespan in humans. Future work should focus on the response of mortality rates to more concentration diets in males and females across adulthood, including late-life.

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